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ART. I.—CONCLAVES.

MUCH as has been written about the Papacy, the subject of Papal Elections may hardly be said to have been touched. The reason thereof is very simple. The matter out of which alone their history can be constructed has been hitherto inaccessible. It lies buried in Italian archives; and Italian archives, especially in all that touched on Rome, have until recently been closed against inspection with systematic jealousy. In the libraries and archives of individual families, it is indeed often possible to glean an astonishing amount of historical information, which would be little looked for in these quarters, and from such sources Professor Ranke mainly drew his materials. It is surprising how much of the highest value for the historian has been deposited in the muniment-rooms of Italian families of distinction, whose ancestors held high posts. It would seem as if it had been the rule with those astute statesmen of former times to keep for their private use a copy of every important document connected with their official actions. But then these family collections are guarded for the most part with a jealousy not a whit less inexorable than that which until recently prevailed in regard to those of the State. In Rome, for instance, there are several family archives, about whose wealth in precious documents for the history of the sixteenth and seventeenth centuries there are traditions, but whereof no student—at least no foreign student—has ever been allowed to see more than the outside. Yet even these family archives would hardly furnish the information for a full insight into the various incidents which marked Papal elections, and caused them to turn in favour of particular candidates. Every other historical event of the family ancestors would be illustrated rather than their doings in Conclave, because while in all other situations these stood more or less in the character of agents who could not

avoid correspondence with their superiors, in Conclave every ancestral Cardinal was actuated with the feeling of a principal, and operated, not through the agency of a surviving instrument, but as much as possible through the impalpable element of colloquy and personal persuasion. To preserve tracings of such proceedings it required that a watchful looker-on should be in a position to take notes, which the chief actors had no interest in perpetuating. Now this is precisely what was done by the confidential agents whom each Italian sovereign kept about a Conclave. These agents were not mere newsmongers, ministering to a morbid craving for gossip in their reports; they were the selected secret instruments set craftily in motion to effect the election of their pet candidates by the ever-scheming individuals who ruled the various principalities of Italy, passing their lives in one perpetual exertion to supplant each other, to smite each other on the hip, and for whom to compass the elevation to the Papal See of a particular individual, at whose hands they had reason to expect personal advantage, was always a capital object of statesmanship. In the despatches of these agents to their employers can one alone expect to find the revelation of the crafty steps and counter-steps which, springing from no higher source than intrigue of the lowest stamp, have had memorable consequences, by lodging at critical moments the supreme prerogatives of the Papacy, and therewith the religious and political destinies of a large section of the human race, in hands that had too often no title to wield this preponderating authority beyond the favour and the successful craft of a patron. History presents no more astonishing spectacle than the contrast between the mean causes which have frequently decided the fate of Papal elections and the momentous issues that have flowed from them.

It is to be hoped that students will turn their attention to the great Italian Archives, which now are freely open to inspection, and furnish us with the documentary records for this interesting and unwritten portion of history. The richness of these all but virgin mines of historical knowledge exceeds imagination; for jealousy, and vigilance, and intrigue were the three cardinal qualities that entered into the necessary constitution of Italian Princes, who therefore spent their lives in incessant correspondence with the agents of their cunning devices. But if it is impossible to recover the exact features of particular Conclaves until the curious contents of these archives are dragged to light, there are yet other points of interest bearing on the general subject of Papal elections, which, though enveloped in no denser mystery than some amount of intricacy, have been likewise very imperfectly treated—at least by writers with

any pretence to popular style. The points we allude to have reference to the constitutional forms of a Conclave—the modes in which a Pope might be created, the provisions devised to meet the exigencies of an interregnum, and the forthcoming political prerogatives that are called into existence on the occurrence of a Pope's decease. An exposition of these various matters would furnish a complete view of the organization of the Holy See, for it is only during assembly for the creation of a Pope that the members of that See are in possession of their full powers. As an institution regulated by distinct laws, the Papacy exists only in the season of its creation; the moment it has been embodied it passes into the state of irresponsible incarnation, above all conditions, all liens, and all obligations. The privileges and provisions that authorize and limit the actions of a Cardinal are absolutely non-existing for him the instant he has been transformed into a Pope. The proclaimed Pope can at once decree, and suspend and abrogate, as he may please; but as long as there are only Cardinals in question, their liberties are secured to them by instruments that at the same time define and tie them down. An account of the state of things constitutionally created by the advent of an interregnum—of the chartered privileges and powers which can then come in question, and of the elements that are recognised as legitimately qualified to intervene in the election of a Pope,—would accordingly furnish a bird's-eye view of the constitution of the Roman See. Here we should have a succinct abstract of the organic outgrowth—in all that concerns inward constitution—of the Roman See, as manifested upon its constituent members in faculties, which are so many commemorative marks of successive stages of development. An exposition of these circumstances could not fail to possess varied interest. It is not the antiquarian alone who would feel his curiosity attracted here to illustrations of historical incidents. The practical politician, living only for immediate interests, and absorbed in the desire of devising the means of satisfying them, might find much in a survey of this nature that may serve his purpose. For amongst the contingencies which the imagination of busy minds is fond of looking to, as likely to prove the occasion for working a solution of the angry problems which have divided the Court of Rome from Italy, none has presented itself oftener than that Conclave, which, in the ordinary course of human events, cannot be far off. The future Conclave has floated before the minds of many curious and anxious inquirers as an inevitable but mysterious fact—looming on the political horizon with perplexingly impenetrable certainty. Every one indeed feels that the Conclave which will assemble on the decease of

the reigning Pope will be invested with unusual importance. Speculation is instinctively attracted towards this mystery of the future, which cannot possibly be avoided. It is not our purpose to attempt to cast our horoscope for the issue of the next Papal election—to venture on the impossible task of anticipating the sensitive and shifting elements of a personal nature that enter into the actual conformation of every Conclave; but what, at a moment like the present, would prove no less instructive than interesting, would be an accurate statement of all the circumstances and incidents which, according to prescription, might come into play during a Papal interregnum.

It will hardly be necessary to remind the reader that the existing mode of Papal election, by which the prerogative of naming the Supreme Pontiff is vested exclusively in those ecclesiastical dignitaries who have attained the rank of Cardinals, is a matter of comparatively late creation; and that for centuries, during the many political vicissitudes which with frightful rapidity, came tumbling over Rome in wild confusion, the election of its bishop, who was ever growing steadily in power, was fixedly lodged in a joint action of the whole community, as falling into the three classes, of civil authorities, people, and clergy. Every other provision connected with public institutions was subjected to incessant revolution; but, amidst this endless influx of change and counter-change, it never occurred until the middle of the eleventh century to make the nomination of the Pope, in law, independent of the civil power, still less to lodge it in the hands of a select body of ecclesiastics, whose choice would be entitled to exact the homage of the clergy and people. It was the period when the Church, as represented by the dignitary who presided over the See of Rome, had drifted down the troubled stream of time, to find itself wedged in against the rocky mass of the Empire, hardened by centuries of high imperial traditions, and specially sharpened by the individual character of the vigorous princes of the Salic race, who then were its imperious representatives. The situation was one in which the timbers of the Church's barque must either push stoutly over obstacles to freer waters beyond, or else that vessel must inevitably wreck itself upon the jagged sides of the hard barrier against which it was jammed. Such a predicament instinctively inspired a demand for increased motive power to the ecclesiastical machinery in the breasts of those who might not be disposed to acquiesce in a timid abandonment of the Church to its fate. It happened, by one of those coincidences which some call providential, and others organic,

that at this conjuncture the destinies of the Church were lodged in the hands of men, and especially of one man, who were pre-eminently endowed with the instincts demanded by the moment. The commanding figure of Hildebrand looms before us grandly as the overshadowing genius of the Papacy during the eventful reigns of six Popes, by whose sides he stands as an unfailing counsellor and prompter, until at the culminating hour of time he chooses to seat himself upon that episcopal chair, which, mainly through his own fostering efforts, had then become actually transformed into a throne of power. It was Hildebrand who, taking advantage of public discussions in Rome, secured by adroit management the sudden nomination of Nicolas II. at Florence in 1058, and then induced his nominee to issue the Bull which must be regarded as the original charter of the College of Cardinals—the Magna Charta on which reposes the existing structure of that body—a deed of abiding importance for the constitution of the Roman See. By it the College of Cardinals was called into creation as an Ecclesiastical Senate, invested organically with the elective franchise which can give a Head to the Church. What may have been before the peculiar prerogatives of the dignitaries bearing this title, is a point difficult to define with certainty; but what does not admit of doubt is that from the Bull of Nicolas II. dates first the organic consummation of a revolution that had long been working its way underground, by which the highest constitutional functions in the government of the Roman See came to be taken away definitively from the ecclesiastical body at large, and vested exclusively in this corporation. The preamble of the Bull rehearses succinctly the political causes which moved the Pope to issue the same—the troubles, namely, which supervened on the demise of his predecessor, and the great grief which the Pope felt at the sad consequences that had befallen the Church through a disturbed election. To obviate similar occurrences for the future, Nicolas II. solemnly decreed, therefore, 'that the election of Pope appertains first to the Cardinal Bishops who officiate for the Metropolitan, then to the Cardinal Clerks, and that the remainder of the Clergy and the People tender but their acquiescence in the election, so that the Cardinals have the lead in making choice of Popes—the others but following them.' The innovation thus ventured upon was two-edged. It was calculated to provoke at once the resentment of the tumultuous populace, civil and ecclesiastical, of Rome, that saw itself deprived of the privileges which practically it had enjoyed of actively sharing in the choice of a Pope, and of the Imperial Crown that had always claimed an influential, and generally even an absolutely controlling voice

in such an election. To propitiate these influences Nicolas II. introduced two rather vague provisions. The Roman populace received the sop that the Pope should be selected in preference out of the bosom of the Roman Church, and only in the event of no fitting subject being there forthcoming, out of that of another congregation. The Emperor was sought to be conciliated by inserting the proviso, 'saving the honour and reverence due to our beloved son Henry, at present King, and who with God's favour it is to be hoped will become Emperor, as likewise to his successors, who may have personally acquired this right from the Apostolical See.' This reservation is memorable, for in after times it was often invoked in the conflicts between the Papacy and the Crown, while a quite recent historian, Gfrörrer, has fallen into the mistake of making this special saving clause for soothing the Emperor's pride the origin for the privilege which certain Catholic Powers at present still claim of applying a veto in Conclave against the election of some particular Cardinal.

The rights so conferred were exercised not without much contest; but it was not until after more than a century that the constitution so roughly hewn out received any further touches at the hands of Alexander III. This great Pope, the unbending antagonist of Barbarossa, and the protecting genius of the leagued cities of Lombardy, won his way to high position, through as various and as persistent hardships as ever fell to the lot of any Pope. Of a reign of twenty-two years, during more than half of which Alexander was an exiled wanderer, eighteen were spent in the bitterness of a schism which was perpetuated through three anti-Popes, and had commenced at the very instant of Alexander's elevation. At that conjuncture the leading divisions between Empire and Holy See had penetrated also into the College of Cardinals; and when those who represented the ecclesiastical party combined to proclaim Alexander with a clear majority, the leader of the Emperor's partisans, Cardinal Octavius, pulled away the purple as the new Pope was about to be robed, and had it flung over his own shoulders. Amidst wild tumult the Conclave was broken up, Cardinal Octavius borne in procession to the Lateran by his friends, and there installed Pope, while the rightful one, on being delivered from imprisonment by Odo Frangipani, fled away from Rome, and got himself hastily consecrated in the parish church of Ninfa, that wonderful forsaken town, which still stands, in the Pontine marshes, without one soul to dwell in it any longer, overgrown wildly with the rank vegetation of those luxuriant but pestilential regions, mirroring in the transparent waters of a hushed mere its church towers and frowning dwelling-houses and crenellated

walls—the silent ghost in stone of the baronial life of the middle ages. It is very natural that a Pope who suffered so much from the persistent opposition of successive pretenders, backing their claims with an embarrassing show of canonical election, should have been deeply impressed with the necessity for surrounding such elections in future with safeguards against the recurrence of similar perplexing returns. Accordingly, when Alexander at last found himself the acknowledged victor in the struggle he had so long waged with undying spirit, he immediately convoked a Council in that Lateran Palace which was the official residence of the Latin Metropolitan, and therein caused a decree to be promulgated that no Papal election should be valid with a majority of less than two-thirds of those voting,—a provision that has ever since remained in force.

It had thus been solemnly ruled that the power of making a Pope should reside with the Cardinals alone, and that no Pope could be legitimate except by the vote of two-thirds of the electors present; but as to any obligatory conditions of form to be observed in such election, little, if anything, had as yet been defined. On this head, as on the others, the organic laws that have definitively regulated matters were plainly dictated but by instincts springing out of practical experiences. The importation through the direct agency of the Papacy of a French dynasty into Italy, in the person of Charles of Anjou, led to the existence of two distinct parties in the Roman Curia; the one favourable to the French invasion, and composed of French elements; the other not exclusively Italian in composition, but yet by its feelings against Charles of Anjou representing the national sentiment. The inevitable consequences of this division were protracted and hotly contested elections, attended during the interregnum by a series of convulsions and tumults which reduced to a shadow the Papal authority in Rome. These lamentable circumstances reached a climax on the occasion of the Cardinals having to choose a successor to Clement IV., who died in Viterbo on the 29th November 1268, one month after the head of the last Hohenstauffen had fallen on a scaffold in Naples, at least with the assent if not by the direct complicity of the Pope. In Viterbo the Cardinals assembled—eighteen in number,—and for two years and nine months Viterbo became the point on which remained fixed the anxious gaze of Christendom, awaiting the nomination of its Spiritual Head. The scenes that occurred then at Viterbo were terrible. In vain did Charles of Anjou take up his residence at Viterbo in the hope of coercing the refractory Cardinals of the national party into electing a creature of his own. His presence only added fuel to the flames of this memorable contest. At last the burghers of Viterbo themselves

rose in fury against an intolerable state of things, which bade fair to convert their city into the standing cock-pit for unquenchable passions, and made their streets the scene of daily bloodshed. Under the direction of the Town-captain, Rainer Gatti, the citizens proceeded to try the effect of physical hardship upon the party-spirit of the Cardinals. The episcopal palace wherein they resided was stripped of its roof, so that the inmates became exposed to wind and weather. There is preserved a remarkable letter dated 'in Palatio discooperto Episcopatus Viterbiensis vi. Idiis Junii MCCLXX. Apost. Sede Vacante,' and addressed to the Podestà, the Town-captain, and the Commonalty of Viterbo by seventeen Cardinals, whose seals are affixed, in which it is requested that, on the ground of his sickness, free passage out of the palace in which they are shut up, be allowed to their colleague Cardinal Henry of Ostia, it being expressly stated that he has waived for this one occasion his right of voting. The careful insertion of this clause deserves attention, as proving that at this period it had not yet been definitively ruled that every Cardinal's active participation was not an indispensable condition for setting a Papal election beyond challenge. The sharp measures devised by the Viterbese proved, however, as powerless as the remonstrances of kings in making these stiff-necked prelates concur in the choice of a Pope. For more than a year longer did they quarrel and fight on amongst themselves, until at last, it is said mainly by the fervent words of the great Franciscan preacher Saint Bonaventura, they were induced to endow six out of their body with the absolute power of nominating a Pope, whom the others stood pledged to acknowledge. This is the earliest precedent we believe for a Pope made by the electoral process technically termed *compromise*—a process that has been put in practice repeatedly, and which is still held not to have become obsolete. On the 1st September 1271, the choice of these six Grand Electors fell on Theobald Visconti, Archdeacon of Liege, and not a Cardinal, who assumed the style of Gregory X. —a man worthy of his august position, whose conscientious nature was painfully affected with a sense of the spectacle which the Church had been exhibiting during the interregnum. He at once called together at Lyons a General Council to regulate abuses, and make provisions for securing harmony in Christendom. The assembled fathers of the Church solemnly promulgated a Constitution, wherein, with elaborate minuteness, are prescribed forms to be observed in Papal Elections, that were manifestly suggested by the sad occurrences of the last Conclave, and the desire to establish safe-guards against their recurrence.

As the Constitutions of Nicolas II. and Alexander III. are the fundamental instruments for the organic powers of fran-

chise vesting in the College of Cardinals, so must that of Gregory X. be held to be the fundamental instrument for the ceremonial which has come to be observed on the occasion of Cardinals meeting in Conclave; for the modifications that have been introduced affect only points of detail. In this memorable decree the principle was first laid down of locking up the Church's electors, with the view of shutting out the action of secular influences. It had before happened that Cardinals suffered imprisonment at the hands of violence, but now it was decreed that they should always be immured as long as they were engaged in the sacred avocation of creating a Pope. It was ruled that on a Pope's decease ten days must be allowed to elapse before his successor could be chosen, with the view of giving time for Cardinals at a distance to come to Conclave; on that tenth day the Cardinals present could proceed to an election, the legitimacy of which could not be impugned on account of the absence of any colleagues. Meeting in the very palace wherein the Pope died, in the event of the decease happening in the city which was the seat of the Papal Court, the Cardinals were enjoined that they might be accompanied only by one attendant each, unless for particular reasons in individual cases a special permission for two were conceded; they were to inhabit one hall in common, without any division in the shape of wall or hanging, and so closed on all sides that no one could get in or out; excommunication was to be incurred by whoever should presume to look in upon the Cardinals while engaged in their electoral labours, although it was lawful, by general consent of all the assembled Cardinals, to confer with a person without, whom it might be deemed necessary to see in reference to matters appertaining to the election. One window alone should be opened upon this hall of assembly, of sufficient size to admit the necessaries of life, it being expressly prohibited, under the aforesaid pain of excommunication, that this aperture be ever used for letting pass in any human being. Should it happen, 'which God forefend,' that no Pope be chosen within three days, the Cardinals should then be restricted to one dish each at dinner and supper during the next five days, and if after that the chair of St. Peter be still vacant, they should be furnished during the remainder of their stay in Conclave with bread, wine, and water alone; nor should it be lawful for a Cardinal to profit by any benefice falling vacant during the interregnum, or to draw any revenue from sources appertaining to the Pontifical Chamber; and no Cardinal could be re-admitted who had left the Conclave for any reason except stress of health, although its doors were to be opened to the same on recovery from sickness, and to every Car-

dinal who arrived after commencement of the election, it being expressly decreed that in neither case could absence invalidate aught that had been done during the time. If the Pope's decease occurred away from his established residence, the Cardinals were to assemble in the city, or the region dependent on that city in which he had died, except in the case of these localities being under interdict; and finally, the faithful observance of these provisions was intrusted to the guardianship of the civil authorities of the locality in which the Conclave met, under penalty of incurring excommunication for neglect of this duty. Taken together, these three Constitutions of Nicolas II. (1059), Alexander III. (1179), and Gregory X. (1271), comprise all the essential features in the mechanism which is now still in force at Papal elections. In the last quarter of the thirteenth century the Pontifical Court had then definitively attained its present organism, and slid into the groove in which its wheels have since run.

Once only has there been a memorable innovation upon what may be considered as the principles embodied in these prescriptions. This happened on the occasion of the Papal election which ensued in consequence of the resolutions arrived at in the Council of Constance. The Church of Rome has never since been exposed to trials of the same nature as those from which she delivered herself by the intervention of this Council. She has indeed been subsequently confronted by difficulties of no slight order, but these have all preserved the character of an external origin, whereas then the Church was racked by inward throes convulsing her very heart. Until such time as a sentence of reversal, accompanied by deliberate rejection of this precedent in the emergency of an analogous crisis, shall have been pronounced by the Church against what then was done, this incident must be taken therefore in evidence of what the Roman Establishment would hold it to be not contrary to its principles to sanction, in the event of equally critical circumstances coming once more into play. The Council of Constance is distinguished from every other Council by its convocation having been due, not to the individual impulse of a Pontiff as a part, but to the spontaneous instinct of society in general, exhausted by the evils flowing from the great schism, and panting for repose from confusion and discussion. All the landmarks of legitimacy had become removed, and an Egyptian darkness enveloped society, when rival pretenders to the Papacy circulated freely in the world without its being possible to arrive at a conclusion who was legitimate and who was spurious. Against such a bewildering state of things the conscience of the Church instinctively rose, and the Council of Con-

stance is the act of this uprising by the Churchmen of the day, in rescue of the institution they cherished, from what were felt to be exceptional evils requiring exceptional remedies. Accordingly, in this assembly, which restored peace to the Church, and the proceedings of which have been recognised without protest as legitimate by the authorities of the Church, two Popes, who then divided the world—John XXIII. and Gregory XII.,—and whose elections, let it be borne in mind, were originally so unimpeachable in form that they have both continued to figure as Popes on the list put forth by the Roman Church—were solemnly compelled to abdicate (1415), and in their stead a new Pope, Martin V., was created by a special constituency formed for that occasion, so as to secure for him a broader title than under the deplorable circumstances of the schism could be furnished by Cardinals alone, all of whom had more or less participated actively in its incidents. It is this acknowledgment of the necessity of special measures for special situations, and this dispensation from a pedantic observance of specified forms, when felt to be hurtful to vital interests—a dispensation which has been ratified in the unhesitating acknowledgment by the Church of what was done on this occasion,—which renders the election of Martin V. a most memorable event. At this time, the exclusive prerogative of the Cardinals to provide a Pope had been in force nearly four centuries without challenge. All popular memory of those other rights of franchise which once existed had quite passed away. No antiquarian reminiscences weighed with the assembled divines, but simply the living instinct of what was demanded by the gravity of the moment, too great to be trifled with, and by the claims of interests, too important to be sacrificed from a rigid spirit of formalism. Accordingly, the Council constituted an especial electoral college, composed of the Cardinals and thirty divines, selected from out of its members, five from each nation present, who together could represent the genuine conscience of the Church ; and these were able to supply a Pontiff who could appease the troubles which had so long afflicted Christendom. The measure was distinctly proclaimed exceptional, and explicitly limited to a particular occasion, whereby its importance as a precedent is heightened ; for this involves the principle that the Church considers itself free to invent new forms, when their adoption may seem advisable for meeting the exigencies of particular times. The Roman *Bullarium* contains, indeed, a string of Bulls subsequent to the three we have mentioned, that bear on Papal elections, but where they do more than solemnly confirm the above, they deal with matters of quite secondary importance, modifying points of mere detail. No new organic principle has been imported into the machinery

of Papal elections since the days of Gregory X. The only subsequent Pontifical utterance on this subject that can lay any claim to the importance of an organic law, is the Bull issued in 1621 by Gregory XV., and which was followed in the year after by an elaborate injunction of ceremonial, which is the one still observed. To go through these successive enactments in their chronological order would, however, be merely to run through a wearisome catalogue, without any but a dry antiquarian interest. Our object is not to inquire what may have been the particular forms and practices embodied in the Roman Court at each period, but what are the powers and forces that come into play in its present organization; and to this end it will be enough if we confine our notice of Papal enactments to such points as may incidentally stand in connexion with, or tend to serve in illustration of, the practices and regulations which at the present day are still in force.

As soon as the Pope's state of health indicates imminent dissolution, the duty devolves on the Cardinal Secretary of State to communicate with the Dean of the Sacred College, that he may summon his brother Cardinals to hasten to the dying Pope's residence, and with the Cardinal Vicar, whose functions are those of Prefect of the ecclesiastical police in the city of Rome, that he may issue orders for offering up public prayers in the churches. Upon the Cardinal Penitentiary, who is the official depositary of the specifically spiritual powers vested in the Pope, falls the obligation of attending him in the last moments, along with his Confessor. When decease has occurred, the fact is immediately notified to the Cardinal Camerlengo by the Secretary of State, who then divests himself of his office, which remains in abeyance until the Cardinals have actually entered the Conclave, when they nominate a secretary, who is, however, not one of themselves. The Cardinal Camerlengo is in precedence one of the highest functionaries in the Roman Court, and figures prominently on all State occasions during the interregnum. He is considered to represent the dignitary who in the earlier times was entitled Vestiarius, and had in charge the stewardship of the Church's properties. Down to very recent times the Cardinal Camerlengo continued to be a very powerful, probably the most powerful personage next to the Pope, in the States of the Church; for within his attributes fell the administration of whatever stood connected, however remotely, with the interests of the Papal Exchequer; while he was besides possessed of immediate jurisdiction over all secular cases in the city and district of Rome. But that process of functional centralization which has gradually reduced the official organization of Rome to a Pope and a Secretary of State has

deprived the Camerlengo of the realities of greatness, and left him a mere lay figure of his former self. Instead of being, as once he was, a dictator for the time of the interregnum, the real King of Rome during the interval between the death of one and the creation of another Pope, whose authority was actively invoked to secure the peace of the city at that season, and did effectively intervene in the course of general government at all periods, the Camerlengo is now confined to the exercise of mere ceremonial, and the hollow display of a dumb-show of authority. From the moment, however, that the Pope has breathed his last, he figures as the first man in the State, and during the days before the Conclave can be constituted, as its direct representative, inaugurating the exercise of his provisional powers by a truly quaint piece of ceremony, the symbolism whereof is obscure. At the head of the Chierici di Camera, the Camerlengo hastens to hold an inquest on the reported demise of the Pope. Proceeding to the death-chamber, the Cardinal strikes the door with a gilt mallet, calling on the Pope by name. On receiving no reply, he enters the room, when he taps the corpse on the forehead with another mallet of silver, and falling on his knees before the motionless body, proclaims the Pope to be in truth no more. It is after this that he forwards to the Senator the notification for the ringing of the great bell in the Capitol, which is to announce to the Romans that their Sovereign has died. This bell, which is tolled only on this occasion and on the opening of the Carnival, has a curious history. It was originally the communal bell of Viterbo. Between this city and Rome a fierce enmity prevailed in the twelfth century, which after hot conflicts ended by the overthrow of the Viterbese in the year 1200. By the terms of capitulation, the Romans carried off, as trophies and signs of supremacy, besides the recovered bronze gate of St. Peter's, which the Viterbese had captured in 1167, a chain and city gate key, which were suspended at the arch of Gallienus, and the communal bell, which from that time has been hung in the Capitol. It was surnamed La Paterina, a denomination which has been derived, with apparent foundation, from the Paterini, Viterbo having been notorious for harbouring a quantity of these sectarians.

From this moment the whole machinery of Government is suspended, and remains so until the creation of a Pope calls it again into activity. For all purposes of administration Rome is as it were placed under sequestration. Even the law courts suspend their sittings, and in every branch of the Executive there is left only that amount of activity which is indispensably requisite to prevent the absolute dissolution of society and order. This state of things proceeds from the strict limitations

imposed by Papal decrees upon the provisional authorities called into existence during the interregnum—limitations that were devised with the view of removing temptations to spin out the tenure of provisional office. Systematically the jealousy of the Popes has carefully circumscribed the powers to be exercised during a vacancy of the Papal Chair until they have become stripped of all serious initiatory faculty, and extend only over the merest matters of indispensable routine. Of this the pomp and glitter devolve, as we have said, chiefly on the Cardinal Camerlengo, who forthwith receives from the Maestro di Camera the late Pope's piscatorial ring,[1] which is broken at the first general meeting of Cardinals, held on the day immediately following the Pope's decease. His next duty, after consigning the corpse to the care of the penitentiaries of the Vatican Basilica, is to take an inventory of all objects in the Apostolical Palace, a very natural proceeding, and deserving notice only because it owes its origin to the once customary riots in Rome during an interregnum, when it was an established thing for the mob to rifle the Pope's palace. To guard against the illicit removal of pontifical property, the Camer-

[1] The ring is called so from having engraved on its stone the figure of St. Peter drawing in his fisherman's net. According to Cancellieri, 'Notizie sopra l'Origine e l'Uso dell' Anello Pescatorio, Rome, 1823,' the earliest record of its use is of the year 1265. Originally it was nothing more than the Pope's private signet for his own correspondence. From the middle of the fifteenth century its use became reserved to the pontifical utterances called Briefs, and has remained so ever since. The distinction between a Brief and Bull lies in a degree of weight and solemnity. The Bull is the most authoritative expression of the pontifical infallibility, as such almost incapable of repeal; while the Brief is directed to something of comparatively immediate and passing importance. The name of the former comes from its leaden seal, which is tied by a hempen cord to Bulls of ordinary import, and by a silken to those conferring sees, and containing matters of grave weight. The style of the Bull runs always—'Pius IX. Episcopus Servus Servorum Dei ad futuram' or 'perpetuam rei memoriam,' with date from the Incarnation, and signature of the various functionaries of the Apostolical Chancery, the document being written in Latin in mediæval letters upon dark rough parchment. A Brief, which is likewise in Latin, has but the Pope's name at the beginning—'Pius Papa IX.'—is signed by the Cardinal Secretary of Briefs, bears date from the Nativity, and is written in modern letters upon soft white parchment. The die of the leaden seal affixed to Bulls was kept at the Vatican until Pius VII. solemnly deposited it at the Cancellaria with pain of excommunication against whoever enters without express permission the room in which it is. At one period the Cistercian Friars had the privilege of furnishing the keepers of this seal. There is yet a third form of Papal expression in writing, called a Chirograph, the exact nature of which it is difficult to define. It appears indeed to have no binding force except what it may derive from personal respect for its author, and resembles in authority somewhat the minutes which at times are drawn up in our offices, or the peculiar expression of Royal injunction in Prussia termed Kabinetsorder.

lengo stays therefore in the palace until all has been properly registered, when, carrying away the key of the Pope's apartments, he returns in state to his private residence, his carriage being escorted by the Pope's particular body guard of Swiss halberdiers, which continues in attendance on him until the election of a new Pope. Also all edicts issued during the interregnum run in his name, and the coin struck by the mint has on it the Camerlengo's private arms. And here at this early stage we already meet the checking contrivances invented against the possibility of some ambitious Cardinal usurping what is due only to the Pope. As soon as the Camerlengo has reached his dwelling he sees three Cardinals arrive—the senior members of the three classes in the Sacred College, bishops, priests, and deacons—who, during the nine days that are prescribed to elapse before a Conclave can be constituted, remain associated with him in a special congregation representing the Executive of the State.[1] The prerogatives of this Board are, however, again carefully limited to carrying out the resolutions taken by the general assembly of Cardinals which meets each day for the transaction of business that is laid down and defined with extraordinary minuteness. It comprises the arrangements for the Pope's funeral, the preparatory disposition for getting the Conclave ready, and the nomination of various officers specially charged with duties either in the Conclave or for securing the peace of the town. Most of the great functionaries in the Court of Rome hold their offices only for the Pope's lifetime. His decease produces therefore an instantaneous absence of authority which the Cardinals have to make good; and in former times, when tumults were the order of an election season, the appointment of the military officer—who, with the title of Lieutenant of the Holy Church, held the Castle of St. Angelo, and together with the Bargello, the chief of the city police, the Sbirri, had the duty of preserving order in the town, and of protecting particularly the Trasteverine quarter, where lies the Vatican, in which Conclaves then met—was a matter of very great importance. On all these points the Board, at the head of which figures the Camerlengo, has no power of initiative, while the general assembly is itself bound by prescriptions, the painful minuteness of which is conclusively illustrative of the spirit of formalism pervading the whole system. For each of the nine preliminary days there is an enjoined assembly of Cardinals that is limited to go through the form of some

[1] From the moment Conclave is opened, and during the whole of its duration, the Executive authority is vested in the Camerlengo, assisted by three Cardinals called Capi d'Ordine, who are chosen by ballot for three days.

minutely prescribed bit of ceremonial mechanism, not to be departed from, not to be exceeded, not to be innovated upon. Every attribute of these assemblies is rigidly fixed and circumscribed. Here we have the unmistakeable impress of generations of jealous Popes, who have been assiduously at work in hammering out a system into such elaborately fine points as must preclude the possibility of their being twisted into other shapes that might be turned against the perfect absoluteness which Popes will allow to reside only in themselves. 'During the vacation of the See,' says Pius IV., in a Bull that is inserted in the last official collection of regulations in force during an interregnum, 'in those things which appertained to the Pope when alive, the College of Cardinals can have no power or jurisdiction whatever, whether of grace or justice, or of giving execution to such resolutions of the deceased Pope; but it is bound to reserve them to the future Pope.' There is an explicit prohibition against this body assuming to dispose of any of the properties of the Church, or any of the moneys belonging to the Apostolical Chamber or to the Datary's office, even for the discharge of debts contracted before the late Pope's death, its power over the coffers of the exchequer extending merely to the maintenance of the functionaries constituting the Papal establishment, and the payment of what may be required for the 'defence of the lands and places of the Church.' It is only on the occurrence of what may be deemed 'a grave peril' by at least two-thirds of the Cardinals assembled that the Sacred College can be dispensed from a literal observance of these limitations upon its prerogatives, and proceed to adopt such resolutions and measures as may seem to it demanded by circumstances.[1] The faculty contained in this provision is of moment, and not to be overlooked. The more one studies the regulations of the Court of Rome, the more will one be impressed by the fact, how, athwart all the dense accumulation of punctilious formalism which has been the aggregate deposit of a current setting in the same direction for centuries, there is yet preserved an element of subtle elasticity that has been shrewdly cherished in secret against the event of the force of altered circumstances making it some day desirable to seek protection in what has been so jealously suppressed and scouted in ordinary times—liberty of individual initiative.

Now-a-days Rome wears during an interregnum no great outer look of change—all going on pretty much in the same steady order as before. But formerly the case was very dif-

[1] These prescriptions are repeated almost word for word in the Bull Apostolatus Officium issued in 1732 by Clement XII., the latest Papal statute on the subject of Conclaves.

ferent. 'Let not him say that he has been in Rome who has not happened to be there during the vacation of the See,' are the words of a contemporary who wrote a narrative of the Conclave which, in 1621, resulted in the election of Gregory XV.[1] Down to comparatively a quite recent date entry upon an interregnum was synonymous with entry upon a period of riot and brawl, which made the streets unsafe for quiet citizens. Every kind of misdemeanour revelled at this season in Rome, which became for the time a perfect bear-garden, in which the criminals let out of jail enjoyed themselves mightily at the expense of peace-loving folk. The lawlessness which then reigned in Rome was a recognised order of things, consecrated by custom, and looked upon as a prescriptive right during the period of Conclave, just as the right of mummery during the Carnival season. The origin of this strange state of things must be sought in the general want of discipline that distinguished the armed force kept by States in the middle ages, and especially in that kept by the Pope. The trained bands were so many bodies of mutinous and lawless brawlers, who seized every opportunity for indulging their natural disposition to insubordination, outrage, and crime. Their pay as a rule was terribly in arrear, and therefore they hardly ever failed to begin operations on the decease of a Pope by a mutinous demand to have their claims settled, or they would do no duty. These men swept together from all corners, true mercenaries and adventurers of the purest water, were the dread of all classes—of the Cardinals, who could not dispense with their services, and had to buy their good humour;—of the townspeople, who were at the mercy of their recklessness. The natural consequence was that during an interregnum Rome wore the look of a city armed for civil war. Every noble in self-defence assumed the privilege of arming his retainers and drawing chains across the street in the neighbourhood of his palace, which was garrisoned by his followers, and converted into an asylum: he usurped the right of keeping his own quarter of the city free from all police but his own. Some of the great families succeeded in obtaining a recognition of this claim, like the Mattei, who had the right to hold the bridges of San Sisto and Quattro Capi, together with the intervening region of the Ghetto, with retainers wearing the badges of their house.[2] But in most cases the authority exercised by the various magnates was only the outflow of an all-pervading

[1] This manuscript is in the possession of Signor Carinci, the excellent archivist of the Duke of Sermoneta.

[2] At the corner of the streets running along the Mattei Palace there can still be seen the stone posts and rings for drawing chains during Conclave times.

spirit of license and tumult, that wrested as much power as it could, without any warrant for the peculiar pretensions advanced. The nominal police of Rome was vested in two officers, who, to add to the confusion, were traditionally jealous of each other's authority—the Bargello, who was the ordinary head of the regular city police, the Sbirri; and the Lieutenant of the Holy Church, who, as commander-in-chief of the soldiery, and special governor of the Leonine city, held office only for the period of interregnum. The particular duty intrusted to his charge was to secure the Cardinals from molestation, and to this end it became customary to erect barricades at the limits of the Leonine city, whereby the free circulation through it was prevented, except for those armed with a special permit.

One of the most riotous elections on record is that of 1623, when Urban VIII.—Barberini—was raised to the chair of St. Peter. The disturbances which then happened are stated by the contemporary diarist Gigli to have been such 'as no one could remember having ever witnessed.'

'Not a day passed,' he writes, 'without many brawls, murders, and waylayings. Men and women were often found killed in various places, many being without heads, while not a few were picked up in this plight, who had been thrown into the Tiber. Many were the houses broken into at night and sadly rifled. Doors were thrown down, women violated,—some were murdered, and others ravished; so also many young girls were dishonoured and carried off. As for the Sbirri, who tried to make arrests, some were killed outright, and others grievously maimed and wounded. The chief of the Trastevere region was stabbed as he went at night the rounds of his beat, and other chiefs of regions were many times in danger of their lives. Many of these outrages and acts of insolence were done by the soldiers who were in Rome as guards of the various lords and princes; as happened especially with those whom the Cardinal of Savoy had brought for his guard, at whose hands were killed several Sbirri who had taken into custody a comrade of theirs. In short, from day to day did the evil grow so much, that had the making a new Pope been deferred as long as it once seemed likely to be, through the dissensions of the Cardinals, there was ground to apprehend many other strange and most grievous inconveniences.'

Against such an all-pervading spirit of lawlessness it was a very inadequate provision for making the streets safe at night that every householder was bound to hang out a lamp before his dwelling during the period of an interregnum. Even now Rome is, of all capitals in Europe, the least pleasant to walk about in the dark; but scandalously unsafe as its streets are, their condition is yet a very pale copy of the state they were habitually reduced to, as it were by privilege, during the pandemonium season of former Conclaves.

Pius IV., a Pope of a certain reforming vigour, issued in 1562 a long Bull, repeating older regulations for a Conclave that seemed to require being called to mind, and forbidding a variety of abuses which had cropped up. The twenty-first clause runs thus:—'Also we forbid wagers, *quas excommissas vocant*, being made on a pending Papal election; and decree that if against these presents any should yet be made, they shall be held and deemed altogether null and void in court, and out of the same; and that those thus contravening, and their brokers, be punished as it may please the Governor and the future Pope.' It will create surprise to find such an injunction amongst the matters considered worthy of particular attention by a Pope when making regulations for the election of his successors. An explanation for the importance here attached to what would seem so irrelevant is to be found in the incidents that came habitually to attend these bets. At one time they grew to be in Rome what the odds given at Tattersall's are with us—a matter involving considerable interests,—occupying whole classes, and producing a standing excitement. The gambling propensities prevalent amongst Italians seized upon the conflicting elements offered by a Conclave to reduce them into a series of chances on which to stake. The shopkeepers and merchants of Rome entered into the game with a passion which resembled our modern habits of speculation in stock. As soon as ever a Pope had breathed his last, the Banchi Vecchii, and Nuovi—streets still bearing these names, and running from the small square in front of the bridge of St. Angelo—became an improvised Exchange, where the rival chances of candidates were publicly quoted and eagerly discounted, amidst commotion that commonly was attended with riot. This locality was the Fleet Street of Rome. Here resided the chief merchants, especially the goldsmiths, from whom the quarter derived its name; for in Rome, as elsewhere, the goldsmiths did business as money-brokers and bankers, figuring as the natural agents and go-betweens in all money operations.[1]

The Bull of Pius IV. was not sufficient to arrest the betting

[1] When Benvenuto Cellini plied his calling in Rome he had his workshop in this locality; and it was while sitting in it—probably a dark vaulted chamber in the ground-floor of a palazzo, with an arch on the street to serve at once as door and window, such as are many shops in the older portions of Rome—that he was affronted by the insulting gestures of the goldsmith Pompeo, who, swaggering down the street, and infected with the licentious spirit of an interregnum season—for this happened when the Cardinals had just entered Conclave,—drew up opposite Benvenuto's shop, and insolently flouted the hot-blooded Florentine, until, unable any longer to check his passion, he bounded out after Pompeo, and stabbed him to the heart for his sauciness.—See Cellini's *Autobiography*, book i. chapter xv.

propensities of the inhabitants of the Banchi; and in spite of Papal fulminations, the chances of an election were still made the subject of wagers that led to frequent breaches of the peace. Amongst the many valuable papers preserved in the Gaetani archives, there is one which is singularly illustrative of what used to occur in this quarter. It is the report by the Duke of Sermoneta, who in the interregnum of 1590 was the Lieutenant of the Holy Church, of the circumstances that led to a murderous scuffle between his own soldiers on guard in the Banchi and a patrol of the city sbirri. By right the Banchi lay within the bounds of the Bargello's authority, but at the request of the shopkeepers the Lieutenant had posted a watch of soldiers in this street. Here he had refused, it was said by mistake, to let pass a round of Sbirri, whereupon the Bargello had hurried in person to the spot to assert his authority, but the soldiers laughed to scorn his pretensions, and a scuffle ensued, with a discharge of firearms, which killed several individuals. The Bargello beat a retreat into the palace of the Governor of Rome, while the Duke, who happened to be standing at the Castle gate when the tumult occurred, hastened across the bridge to appease it, and draw off into the Borgo his riotous soldiers. In his report he then recommends measures to prevent the recurrence of such scenes, and states the cause that lay at their bottom: 'I have sent,' he writes, 'another company to be in guard at the Banchi; but it may be deemed advisable, on account of what has happened, to remove altogether this post from there, as the brokers and dealers wish and ask for the same only because it affords them protection for laying their wagers, and they are the parties who sow dissensions between soldiers and Sbirri. . . . If this guard were taken away from the Banchi, the Bargello would then be able to pass there freely, and thus a stop would be put to these wagers, from which proceed all these riots.' Now-a-days, this mode of making a Papal election subserve the general love for play has been superseded by the system of the lottery; and whereas formerly heads were often broken in the angry excitement caused by the daily rise and fall in the rival chances of favourite Cardinals, the population of Rome at present during an interregnum satisfies its gambling passion by peacefully playing on combinations of numbers formed out of the ages of Cardinals, or any other circumstances connected with their individualities which human ingenuity may be able to translate into a cabalistic expression.[1]

[1] It is proverbial that in Italy nothing is sacred from conversion into some reduction into numbers that are made available for the lottery. It is not the public alone, but the Conscript Fathers of the Church themselves, who during Conclave time contrive to indulge their gambling passions in numbers that

A Bull of Clement XII. (1730-40), impregnated with the spirit of economy, abolished, together with a number of offices, the Governorship of the Leonine city. The reforming hand of the age, quickened by the prickings of inexorable penury, has been successfully engaged in paring down the old-fashioned lavishness of even arch-conservative Rome. At present the peace of the Popeless city is left entirely to the care of Monsignor Governatore, who with drilled gendarmes in modern plight has superseded the once rival powers and fantastic archers of the Church's Lieutenant and the civic Bargello,—ruling Rome during an interregnum by the same grim intervention of prowling police that is ordinarily busy in its streets when an actual Pope resides in the Vatican. One vestige alone still figures of the peculiar powers which started into existence at the beck of necessities now happily vanished. It is to be found in the pomp and parade that attend the Marshal of the Conclave,—an officer who is a member of the great Roman aristocracy, and whose professed duty is to be the jailer of the assembled Cardinals, having it on his conscience to keep them tightly shut off from contact with the outer world. In reality, this dignity is now become an appanage of the Chigi family, though, in strictness, not hereditary, the office being conferred afresh for life on each new head of the house. The origin of the creation dates from the troubled period of Gregory X.'s elevation (1271). Innocent VI. (1352-62) bestowed the office on a member of the great Savelli family, which from father to son retained it until in 1712 this house became extinct, having held the dignity always by the same tenure by which it now descends in the Chigis, on whom it was conferred at this period. Once the authority attached to this office was very considerable, and not confined only to the season of interregnum, for the Marshal possessed jurisdiction over all lay members of the Pontifical Court, who were tried before his special tribunal, the Corte Savella, and lodged in his special prison. That privilege came to an end under Innocent X. (1644-55), in whose edict of suppression the grave abuses prevalent in that

are considered to represent the mystical operations of the Holy Ghost. Stendhal, who gives a very capital account of the Conclave in 1829 in his *Promenades dans Rome*, has a good story of his witnessing some inmate of the Conclave playing in the lottery through the wheel which serves for conveying meals in: 'Just as after the inspection of two or three dinners all this kitchenwork bored us,' he writes, 'and we were on the point to withdraw, we saw a ticket come through the turning-wheel from within the Conclave, with the numbers 17 and 25 thereon, and the request to put it in the lottery. . . . These numbers might signify that in the morning's balloting the Cardinal occupying apartment 25 had 17 votes, or any other combination. These numbers were faithfully handed over to a servant of Cardinal P—.'

Court, and the scandalous state of the prisons, are expressly alluded to as rendering reform indispensable. In spite of these curtailments of his powers, the Marshal retains all the outward display of high rank, and figures during a Conclave as second in precedence only to the Camerlengo. The essence of his importance has indeed much waned; about the only real exercise of authority which he may yet be called upon to put in practice being the legitimate distribution of pass-medals, which the Marshal is entitled to get coined in silver and gold. Nevertheless, in the ceremonial pageant of Rome, this dignitary makes a prominent show, although his splendour has not escaped the paring action of that spirit of reduction which has been in the ascendant of late. The *Diario di Roma* of the day gives a glowing description of the sumptuous magnificence displayed by the first Marshal of the Chigi family on his first appearance in this capacity after the death of Clement XI. in 1721:—

'Before his palace in Piazza Colonna there was drawn up his company of hundred men enlisted and clothed in blue cloth at the Prince's own cost, together with their officers. Then there went to attend his Excellency a company of fish-vendors, clothed in gala, in white and blue calico, and white feathers in the hats, with borders, after which came a troop of rosary-makers, and then another from the quarter of La Regola, and these going in a body before the great standards with his Excellency's arms, marched along the whole Strada Papale to St. Peter's, and mounted guard at the Prince's own apartment, which is at the great staircase of the Vatican Basilica.'

During a Conclave, the Marshal still takes up his quarters in the building where it meets, and just outside the barriers that shut in the Cardinals, to watch over whose strict confinement, and to inspect the unimpeachable nature of the articles passed through the turning-wheels for the admission of really indispensable objects, constitute the only duties he still has any pretension to perform. The thrifty spirit of Clement XIII. (1758-69) included the gay bands of retainers amongst the items suppressed by his reforming Bull, so that now the Prince-Marshal has a less ostentatious, but also less costly guard, furnished by a contingent of Papal regulars.

It would be tedious to recount the prescriptive ceremonial for each of the nine days of preparation before entering Conclave. The first three are more particularly devoted to the obsequies of the Pope, which take place always at St. Peter's—the chapel of the Pontifical residence, and are marked by many striking rites, full of obscure symbolism, and quaint mementos of obsolete customs. Stendhal, who was in Rome

at the death of Leo XII., and curiously followed the ceremonies of the interregnum, gives in his *Promenades* an excellent account of what is still practised:—

'To-day the obsequies of the Pope began at St. Peter's,' he writes, 'and we were there from eleven in the forenoon. The Pope's catafalque has been raised in the Chapel of the Choir, surrounded by the noble Guards in their handsome scarlet uniforms. The body of the Pope is not yet there. Before the catafalque a high mass was read. It was Cardinal Pacca who officiated as sub-dean of the Sacred College. . . . After mass, the Cardinals withdrew to govern the state; their sitting took place in the chapter-hall of St. Peter's. . . . While the Cardinals were busy governing, the clergy of St. Peter's went to fetch the body of Leo XII. in the chapel where it was exposed; the *Miserere* being chanted. The corpse having been borne into the Chapel of the Choir, the Cardinals returned. The corpse was splendidly robed in white; with great state was it placed, in strict conformity to a very intricate ceremonial, within a shroud of purple silk, ornamented with embroidery and gold fringe. In the coffin were laid three bags filled with medals, and a parchment scroll, wherein was the history of the Pope's life. The curtains of the great gate of the chapel were drawn, but some favoured foreigners were clandestinely smuggled into the singers' tribune.'

Stendhal adds the remark, that 'a well-founded spirit of suspicion pervades everything that happens on a Pope's demise; for the poor deceased has no relatives around him, and those charged with providing a successor might possibly bury a Pope alive.' The deathbeds of many Popes have indeed witnessed shocking scenes of destitution and abandonment, coupled with outrageously indecent treatment of the corpse. What can be more lurid in its effect than the sacrilegious brawl, by torchlight, over the dead body of Alexander VI. (1504), between drunken soldiers and priests, within the hallowed area of St. Peter's, just before the very altar, as it is drily described by Burckhardt?—'By four beggars was the corpse borne into St. Peter's, the clergy, according to custom, preceding, and the canons walking by the side of the bier, which being set in the midst of the church, they stood awaiting the *Non intres in Judicium* to be said, but the book could not be found, wherefore the clergy began singing the response *Libera Domine.* While this chanting was going on in church, some soldiers of the palace guard laid hold of and snatched the torches from the clerks, whereupon the other clergy defended themselves with the torches in their hands, and the soldiers made use of their weapons, so that the clergy, becoming frightened, rushed in a body into the sacristy, leaving off their chant, and the Pope's corpse remaining by itself. I and some others took up the bier and carried it before the high altar.'

Happily there is no record of any other scandal of equal magnitude, but yet the funerals of many Popes have been attended by circumstances of a painful nature, in glaring contrast with the eminent rank of the individual who was being borne to his grave.

By the ninth day everything requisite for proceeding to business must have been arranged, and the Conclave must be ready to receive its inmates, and these must have been selected. For a Conclave comprises a population all locked up in attendance upon the possible wants of their immured Eminences. It would take a page to give a list of all the different classes of functionaries and servants who have to share the privileges of this imprisonment,—from the Maggiordomo to the Father Confessor, and from the Head-Physician down to the Barbers and Carpenters and Sweepers. All these classes are carefully indicated in grave Papal rescripts, as also the exact number in each which it is allowable for a Conclave to contain; the nomination always resting with the general congregation of Cardinals, except in the case of the Conclavists who are private secretaries to the Cardinals, and therefore selected by their patrons within specified limitations. These Conclavists have often played a most important part in Papal elections, many of which have owed their issue to the adroit practices of these subaltern agents. The position of a Conclavist is therefore confidential and influential.[1] Each Cardinal may be accompanied by two, who must be neither engaged in trade, nor the stewards of princes, nor lords of a temporal jurisdiction, nor the brothers or nephews of their patron Cardinal, in whose household they must have been domiciled for a twelvemonth before. The feeling of jealous precaution which is plainly dominant in all these regulations, has caused their conditions to be carefully observed. In 1758 Cardinal Malvezzi attempted to smuggle in a favourite Canon Bolognini, and underwent the mortification of seeing him denied admission by the Sacred College, on the ground of his not having been a *bonâ fide* member of the Cardinal's household for the prescribed period, and its being therefore apprehended that he had been selected for the purpose of serving as the

[1] The obligation of *secrecy* is as incumbent in law on the Conclavists and officials as on the Cardinals. In 1829 the violation thereof was visited with public expulsion and imprisonment. 'A Conclavist (I believe the one of Cardinal Ruffo Scilla) and a porter (*facchino*),' writes the Modenese Envoy Ceccopieri, 'have been expulsed and put in prison for having, in defiance of the oath of secrecy by which all are bound when setting foot in Conclave, caused it to be distinctly known that Cardinal de Gregorio would be chosen in ten days' time,—an election which, however, went off in smoke, through Cardinal Albani's entrance.'—Bianchi, *Diplomazia Europea in Italia*, vol. ii. p. 430.

instrument to promote particular influences. On this occasion another curious exclusion was witnessed. The appointment of Physician-in-Chief was about being conferred on a Dr. Guattani, who is specially mentioned to have been a practitioner of renown, when Cardinal York expressed his father's hope that the Sacred College, in deference to his royal wish, would not make this nomination—a wish which was accordingly acceded to.[1]

The Conclavists constituted and still constitute a corporation conscious of power, and invested with recognised privileges. They have in fact acquired the substantial position which useful subalterns always do acquire. From an early period they appear to have been in the receipt of considerable gratuities which they stoutly exacted, and finally reduced to a legalized tariff. Amongst themselves they fixed a formal code of regulations in reference to perquisites, to which every Conclavist was bound to adhere, although such stipulations were distinctly contrary to Papal Bulls. It was an established abuse that the cell of the newly-elected Pope should be sacked by the Conclavists, each man carrying off what booty he was lucky enough to secure. This monstrous perquisite was once subjected to reform by the Conclavists meeting on the 13th March 1513 in the Sistine Chapel, and discussing the point as if it were the most canonical right. The determination arrived at is preserved in a very business-like *procès-verbal*, given in full by Moroni, just as if it had been a legal document, instead of the expression of triumphant license. It was ruled that in lieu of the Pope's cell being offered up to common plunder, it should be the perquisite of his Conclavist on payment by the latter to his colleagues of 1500 ducats in gold, for which these became bound bodily to each other. But a custom of old date, however illegitimate, is not abolished at a blow; and the Conclavists continued their tumultuous and extortionate proceedings without alteration, in after Conclaves. In 1555 the Cardinals selected Marcellus II., and of his election we have an amusing narrative by the Conclavist Dionigi Atanagi, a Conclavist of more than ordinary audacity—for he ventured on what was little short of sacrilege, in hiding behind the altar of the Sistine Chapel, when all but Cardinals should have left it, and peeping thence upon the very mysteries of the sacred vote which constitutes a Pope. On this occasion the Conclavists, who appear to have been, all through, more than usually overbearing, chose eight of their number as 'defenders to secure the observ-

[1] What may have been the particular ground of complaint against Guattani we have not been able to learn. The Chevalier de St. George enjoyed in Rome all the privileges conceded to a sovereign, and as such recommended Cardinals for nomination; it was to him that Cardinal Tencin owed the red hat, according to the President de Brosses.

ance of their privileges, which are many.' At one time Cardinal Cervini was thought likely to be elected, but this Prelate was not popular, especially with the gentlemen-Conclavists, who, we are told, accordingly contrived to put a stop to his election by secretly causing the report of its probability to circulate through Rome in a degree that acted in the wished-for manner upon the Cardinals' nerves, who then fixed on Marcellus. 'Then,' writes Atanagi, 'we all went out of the chapel and accompanied the Pope to his apartment, which he found sacked by the Conclavists, so that he was forced to go into that of Cardinal Montepulciano; at the same time the gates of the Conclave were burst open, and a crowd rushed in. Had it not been for Master Ascanio della Cornia the whole Conclave was in danger of being gutted.' On another occasion the slyness of the Conclavist Torres all but deprived Pius IV. (1559) of his election. Torres was in attendance on Cardinal Cueva. Clandestinely he canvassed one night the Cardinals, speaking to each man singly as if he did so only to himself. His language was that it would be gratifying as well as proper that Cueva, who, he said, could not be elected, should have the honour of the testimony of respect involved in the vote of the particular Cardinal whom he was addressing. The vote, he averred, would be a barren but yet a pleasing distinction. By such representations, cunningly addressed singly to each Cardinal, Torres had actually got thirty-two votes out of the thirty-four in Conclave, and was inwardly chuckling over the astonishment which would follow on the opening of the ballot-box, when the trick is said to have been defeated by Cardinal Capo di Ferro accidentally asking his neighbour for whom he was about to vote, and being told for Cueva, to pay him a compliment at Torres' suggestion. Still seventeen votes had already been given in his favour before the exposure of the trick. Down to the time of Alexander VII. (1655) the sacking of the newly-elected Pope's cell seems to have been the rule. It appears that its contents are now the perquisites of his Cameriere, an individual who stands in the position of familiar menial. The Conclavists are at present in the enjoyment of perquisites secured by Papal rescripts,—conclusive evidence of the peculiar influence possessed by this body of men. Fifteen thousand scudi[1] are allotted as a fee after election, to be divided amongst the Conclavists, who besides are allowed the privilege of becoming full citizens in any town within the Pope's dominions, are admitted to the rank of nobility, and, if members of a religious order (every Cardinal must have one *ecclesiastical* Conclavist), are empowered to bequeath, by will, away from their brotherhood.

[1] About £3000.

It has been of late a not unfrequent topic of whispered talk in Rome, how far these prescribed nine days of preliminary ceremonial are obligatory, and might not be dispensed with by a timely fiat of the Pope's. The idea is in fact entertained by persons deserving consideration, that in view of the extraordinary difficulties to which the Holy See is exposed, a Chirograph of the Pope's is in actual existence, absolving the Cardinals from the obligation of observing the customary form of election, and empowering them to proceed to the nomination of a Pope *coram cadaver*. The report has an air of unlikeliness, but yet it is heard in serious whisper from lips not favourable to hasty gossip, and which persist in calmly affirming the existence of the document with the accent of conviction. There can be no question as to the strict competency in principle of the Pope to authorize such a grave departure from the custom of ages, by an individual act, without the formal concurrence of the Cardinals. There are precedents for similar proceedings. Adrian V. (1276), who reigned only a few days over a month, actually abrogated the great Bull of his predecessor Gregory X., and this repeal remained in force through six elections, until the scandalous consequences of the abolition of disciplinary provisions induced Celestine V. (1294), with his hermit nature, to revive the law of Gregory X. Still more in point would be what was done by Gregory XI. (1370). It was the time when the Holy See, for nearly three quarters of a century, had been pining in self-willed exile at Avignon. It was felt by all devout minds that the situation into which the Church had got herself, through this step, was ruinous to her interests. The Pope himself, although a Frenchman, was fully alive to the fact that to save the Church it was indispensable to satisfy the outraged conscience of Christendom, by carrying back the Holy See to Rome. But to do this effectively it required an effort of force, for the Pope in those days was in the same plight as many of his successors, of being surrounded by a cabal of hostile interests,—a network of opposing Court influences, in our times called a Camarilla. The Pope might himself flit, indeed, to Rome, and yet, with the individuals composing the Sacred College—in great proportion creatures of the French Crown, and the existing distribution of political interests, the same might be expected again to occur which already had occurred, that the transfer would be only for so long as the Pope lived. To secure a lasting re-establishment of the See in Rome, Gregory XI. perceived it to be necessary to make, for once, a radical change in the value attached to specified forms in the machinery of Papal elections. By a Bull bearing date 19th March 1378, Gregory XI. at one stroke of the pen suspended every existing regulation on the subject of Papal elections, set the Cardinals

free from the observance of any obligations they might have sworn to in accordance to prescription, and specially empowered them not merely to meet for election on his decease, whenever it might seem convenient, but to nominate by *simple majority*. This memorable exercise of Papal authority, constituting a true *coup-d'état*, stands justified by the approving voice of all ecclesiastical authorities, who have accepted it, without, so far as we know, one observation conveying an insinuation of usurpation against this Pope for what he did on this occasion. He dealt with a special emergency, as the Council of Constance did, by the application of measures drawn from the inspiration of the moment, and fashioned without slavish deference for precedent; and in both cases the result proved the wisdom of such bold action. Indeed, if we believe a writer whose authority it is difficult to reject, the Papal records would furnish a yet more recent, and, in some respects, a yet more pointed precedent for the issue of an enactment such as Pius IX. is supposed by some to have secretly made. When Pius VI. (1775-1799) was himself a state prisoner in the Certosa of Florence, he is said to have deposited with Monsignor Odescalchi, then Nuncio in that city, a Bull dispensing the Cardinals from the obligation of meeting for Conclave in Rome, and suspending all existing prescriptions of form and ritual, for the express purpose of facilitating an accelerated election, at a season so pregnant with peril to the Church.[1] On the demise of Pius VI., a Cameriere of Monsignor Caracciolo—Maestro di Camera—is affirmed to have been despatched to the Cardinals in Venice and Naples to make them acquainted with this document. In Gonsalvi's recently published Memoirs there occurs no confirmatory notice of such a rescript; but from their fragmentary nature this fact would not suffice by itself to disprove a statement made with so much circumstantial detail by a writer in so favoured a position as Moroni for intimate knowledge of Vatican secrets. Our own efforts have indeed failed to glean any additional evidence for this curious story, which would be of evil omen for the purpose which alone could prompt Pius IX. to the step he has been credited with, since, in spite of the special privileges thus supposed to have been extended to it, the Conclave which met in Venice was neither short nor harmonious.

Pius VII. expired in the Quirinal (1823), and, in accordance with the letter of the law prescribing a Conclave to be held in the

[1] This story is given by Moroni in his voluminous *Ecclesiastical Encyclopædia*. This work, composed in Rome, with every possible assistance from the highest authorities, must be regarded as embodying the official views of the Court of Rome on all the subjects treated in its pages, and therefore is a composition of capital importance.

very palace in which the Pope dies, the Cardinals congregated there. Since then, however, they have continued to do so on each vacancy, without any warranty of the kind. The Vatican is now therefore deserted for those Conclave doings with which its name stands so closely associated. Not that Papal elections were uniformly held there. The churches of Rome abound in historical memories connected with the scenes of Conclaves. Several memorable Popes were created in the Church of Minerva; and even St. Sabina, that stands in solemn loneliness upon the unpeopled heights of the desolate Aventine, once was the scene of eager contests after the death of Honorius IV. of the Savelli blood (1288), in the adjoining family palace, the picturesque remains of which are still so strikingly conspicuous. The earliest Conclave recorded to have met within the Vatican precincts is that of 1303; and not till the election of Urban VI. (1378), did a second assemble at the same spot. Then there followed again a series in various localities, until, in 1455, a succession of Vatican Conclaves began with Calixtus III. that was not broken until this transfer to the Quirinal in 1823.

Although apparently the Vatican has now become obsolete for electoral uses, its name stands so closely associated with the eventful traditions of Conclaves, that the reader will excuse a few words on the arrangements which on such occasions were made in this celebrated locality. The whole of the first floor of the pontifical palace was strictly shut off for the accommodation of the Cardinals and of the throng of individuals of various degrees who were appointed to share their imprisonment. The Cardinals were lodged each in a booth by himself, technically termed a cell, erected in the vast halls constituting the Vatican apartments, each of which contained a number of these wooden huts that were divided into a couple of small ground-floor rooms, occupied by the Cardinal, and similar accommodation above for his confidential attendants, the Cardinals created by the late Pope having their cells hung with violet cloth, in sign of mourning, while those of the others were draped in green; and this distinction is still observed. When the Sacred College was so numerous as to cause a pressure for accommodation, the gallery over the vestibule of St. Peter's used to be also given to the Cardinals, as was the case in the Conclave of 1740, witnessed by the President de Brosses.

The distribution of these diminutive houses was always by lot. The one who had fared best in the raffle on the above occasion was Cardinal Tencin, who had drawn the hut in the middle of the gallery, so that the niche of its big central window, walled up until a new Pope has to be proclaimed therefrom, formed a spacious extra apartment at the back of his booth.

'But,' adds the President, 'for this convenience he will also be prettily rifled and pulled to pieces when the new Pope comes to the balcony to give his blessing to the people in the square below.' The great hall at the top of the Scala Reggia, which serves as a vestibule to the Sistine and Pauline chapels, remained always free, and was the playground of the imprisoned Cardinals,—the spot in which they met and walked up and down together for recreation or for consultation. Also, the same hall has been the scene of many stirring encounters and sly colloquies. In the Pauline Chapel it was usual to erect six supplementary altars, whereat each Cardinal and Conclavist performed his appointed daily mass, while the Sistine was always set apart for voting operations. It was the polling-booth of the Conclave, and popular tradition ascribes the injured condition of the paintings on its walls and ceiling in great degree to the effect of the smoke from the balloting-papers regularly set on fire in the chapel after every unsuccessful ballot. No plea could enable a Cardinal, or any one belonging to the establishment in Conclave, to extend his steps beyond the precincts of the first floor, every window and aperture in which—especially the arches of the Loggie, running round the court of Saint Damasus—were jealously walled up, with only so much window left as must needs be preserved to let in an indispensable amount of light,—the spared panes being, however, protected against an illegitimate gaze by a covering of oilcloth. The doors at the top of the Scala Reggia, leading into the great hall between the two chapels, alone were left unwalled, for the admittance of Cardinals who might arrive after the commencement of business, or the ceremonial visits conceded as a privilege to royal persons who might happen to pass through Rome during a Conclave. But these doors, except on such occasions, were kept carefully closed with four locks, two on the outside, the keys of which were intrusted to the Marshal, as porter of this gate; two on the inner side, the key of one being in charge of the Camerlengo, and of the other in charge of the Master of Ceremonies. By the side of the door there were two wheels, or rather turning-boxes, for the admission of objects declared free from suspicion, after inspection by the officers on guard against the introduction of correspondence, and in other parts of the building there were six other such, similarly guarded, for the admission of the many articles without which it was physically impossible for so large a congregation of human beings to get on. The shape of these wooden turning-wheels is the same as those used in the 'parlatories' of nunneries, and their application is ascribed to the ingenuity of Paris de Grassis, who officiated as Master of the Ceremonies at the Conclave which elected Julius

II. (1503),—up to which time everything admitted had to be let through an aperture in the wall, as prescribed in the bull of Gregory X. Outside the palace there were posts of soldiers around its walls, and at every approach, and no one was permitted to pass the barriers erected on the Bridge of St. Angelo and at the gate of the Leonine city who was not furnished with a pass-medal, so that the quarter of the Borgo was practically shut off from circulation during the sitting of a Conclave.

In the locality that is now used there is no longer any need for the erection of wooden booths. The portion of the Quirinal Palace devoted to the accommodation of a Conclave is that which runs along from Monte Cavallo to Quattro Fontane. Here there is probably the longest corridor in the world, upon which opens at equal intervals a succession of doors—exactly like those of monks' cells in a convent corridor—that lead into apartments comprising each three or four rooms. Here are the habitations of the Cardinals during Conclave, who draw lots for them exactly as they did for the booths. On all points of form and ceremonial, however obsolete for practical purposes, there is observed a minute imitation of what was the rule in the Vatican. As formerly the Borgo, so now the street running towards Porta Pia, is closed by chains, while at the top of the great staircase are met the same turning-boxes that figured at the head of the Scala Reggia. Some avowed relaxation indeed appears to have become sanctioned from the absolute seclusion to which the Cardinals are condemned by the tenor of Papal Bulls, which are, however, unrepealed. At these wheels Cardinals are allowed occasionally to converse with visitors,[1] —but always so as to be overheard by attendant guardians,—as also to receive letters under the restriction of their being first perused by these. It is superfluous to add that in spite of the severe penalties launched with the full weight of Pontifical anathema against every violation by an inmate of the Conclave of the command not to hold intercourse with the world, the correspondence between the Cardinals within and their political friends without has at all times been general. As a rule, the secret of sitting Conclaves has not been denser to penetrate for those having an interest to do so than the secret of pending conferences generally are for the parties engaged in working and counter-working political plots. In Father Theiner's elaborate History of Clement XIV., for the vindication of his election against the charge of uncanonical engagements beforehand to sacrifice the Jesuits, we

[1] No one is permitted access to these wheels—termed *le rote nobile*—unless provided with a small staff painted green or violet, and bearing some Cardinal's arms, or with a pass-medal from the Camerlengo, or Maggiordomo, or Governatore, or Marshal, or General Auditor of the Ap. Chamber.

have been furnished with the confidential correspondence kept up day by day by immured Cardinals with their confederates outside. Also it is amusing to read the involved explanations through which the perplexed author tries to extenuate this flagrant violation of the plain letter of Papal Bulls. There is no publication which sheds so full a light upon the whole process of Conclave proceedings as these pages in Father Theiner's book.

When all preliminary observances are over, the Cardinals assemble in the church of St. Sylvester, on the Quirinal, opposite the Rospigliosi Palace, known to visitors of Rome for the paintings it contains by Domenichino, but possessed of a yet higher interest as having been the scene where Vittoria Colonna, who resided in the adjoining convent, used on Sundays to hold deep colloquies with Michael Angelo and other choice spirits, of which a striking record has been strangely preserved in the diary of a Flemish painter, which some years ago was discovered in the Lisbon Library.[1] In this church they attend a mass of the Holy Ghost, and listen to a sermon, after which, preceded by their attendants, and the full string of office-bearers, the Cardinals walk in procession across the Piazza, and solemnly enter Conclave, which, however, is not finally closed until a late hour in the evening. Till that moment the Conclave presents a scene of busy activity; for it is customary for every person of rank in Rome to pay his respects to each Cardinal in his cell. The Conclave therefore offers the gay appearance of a public State reception such as every ambassador holds in Rome on his arrival, and every Cardinal on his nomination, with this difference, that only the male sex is present at the Quirinal. But there is more done on this afternoon than merely to whisper words of compliment. The swarming hive of busy beings hurrying from cell to cell is alive with political emotions. Hither hie, then, all the ambassadors, and envoys, and political agents in Rome, to snatch the last opportunity afforded for unrestricted conference, to give the last stroke to eager appeals of soft persuasion, or deterring menace, the last touch to cunning combination, and particularly to deposit in the hands of an intimate confederate the knowledge of those whose nomination their Courts will absolutely not brook. At the third ringing of a bell, three hours after sunset, the Master of the Ceremonies makes his appearance, and calling aloud '*Extra omnes,*' obliges strangers to withdraw beyond the

[1] It has been printed in part in *Les Arts en Portugal.* Par le Comte A. Raczynski, 1846.

sacred precincts, to which every ingress is then jealously walled up, except the door at the head of the principal staircase, on which bars and bolts are drawn, and heavy locks are turned, with due formality—those on the outside in presence of the Prince Marshal—those within, of the Camerlengo and his three Cardinal colleagues; and now is proclaimed the commencement of that solemn confinement, which by law should be absolute until a new Pope has been created, or at all events, according to the constitution of Gregory X., until a vote of two-thirds of the immured Cardinals shall have ruled its suspension. Often, however, this preliminary work of clearance has proved a task of trouble, and poor Masters of the Ceremonies have been driven distracted by the obduracy of ambassadors in giving no heed to their repeated summonses, and earnest supplications that the final conferences with confidential Cardinals should be concluded.

Before proceeding to actual business, the Cardinals go through the formality of proving their identity and right to attend Conclave. In reality, this is nothing more than a form glibly run through, for there can be no danger of personation in this small constituency. But this ceremony affords the opportunity of saying a few words on a point about which, more than on any other connected with Roman ceremonial, there prevails misapprehension—the real nature and position of a Cardinal. That laymen can be made Cardinals is generally known; but we venture to say that whoever has tried to elicit an explanation in Rome of the particular distinction between such lay Cardinals and their colleagues in holy orders—the difference in standing between the two—will have been perplexed with the confused answers he will probably have received to his inquiries. The only means of obtaining the requisite information is by a perusal of Papal edicts. The Sacred College is now fixed at seventy members—six Cardinal Bishops, fifty Cardinal Priests, and fourteen Cardinal Deacons,—according to a rule that has been in force since 1585.[1] Now, there is no canonical injunction which im-

[1] It adds much to the confusion on this subject, that this division into classes is often only nominal, a Cardinal being put by favour or for other reasons into an order he does not belong to. The present Dean of the College, Cardinal Mattei, for a long time figured as a Cardinal Deacon, although he had taken priest's orders. More perplexing is it to find Cardinal Priests who have never taken these orders. Such was the case with Cardinal Dandini, who, when merely a deacon, was made in 1823 a Cardinal Priest and Bishop of Osimo. 'Only nine years later,' says Moroni, 'did he take priest's orders, having in the interval taken part in three Conclaves as a Cardinal Priest, without really having that character.' Nor is this all. Moroni speaks of persons having ranked amongst the six Cardinal Bishops when they had never been more than deacons.

poses any qualification for a Cardinal that can limit a Pope's selection, except, it would appear, the condition of celibacy. Provided a man has not a wife alive, he is quite able to be promoted to this rank in the Church any moment it may suit a Pope to confer it. It is a more perplexing point to ascertain how far, as Cardinal, the layman is subject to ecclesiastical obligations, and can return to the world only with the sanction of the Pope. A long list of Cardinals who have done this can be made out, but in almost every instance the change in condition happened by special dispensation from the Pope. The only instances in which, to our knowledge, Cardinals returned to their former state without the Pope's declared assent, are against their having the privilege of taking by themselves such a step; for they are instances of Cardinals, like Chatillon, in rebellion against the Church. On the other hand, the instances on record of Cardinals who were relieved from their ecclesiastical obligations are extremely curious, and testify strikingly to the wonderful elasticity in the regulations of the Church. These dispensations constitute a highly instructive, but also a little-read chapter in the history of the Romish organization. Cardinals even in orders have repeatedly been permitted to divest themselves of their dignity and to marry; but in every such case well-defined political influences appear to have been the predominating cause that induced the Pope to concede the favour. Thus in 1588 we find Ferdinand Medici authorized to throw off the purple, and become Grand Duke of Tuscany; in 1642 Cardinal Maurice of Savoy to take a wife and a duchy; in 1695 Cardinal Rainaldo of Este to make the same change in his condition. On the death of King Ladislas of Poland, his brother Casimir, a member of the Society of Jesus, and named Cardinal in 1646, received a dispensation not merely to abandon the purple, but also to marry the King's widow, his sister-in-law, Mary Gonzaga. Still more astonishing were the favours conceded to two brothers of this lady's house. To prevent extinction of the family, Paul v., in 1615, permitted Cardinal Ferdinand Gonzaga to go back into the world. On this change he became enamoured of a woman of inferior rank, Camille Erdizzani, and married her; but becoming afterwards tired of his wife, he sought and procured the Pope's authority for repudiating her, when he espoused Catherine Medicis, daughter of Duke Cosimo II. But there was at the same time a second Cardinal Gonzaga—Vincenzo, the brother of Ferdinand,—and he also succeeded in obtaining permission to give up the Church for the sake of indulging his passion for a kinswoman, Isabella Gonzaga.[1] In all these cases, however, it is clear that some orders

[1] Perhaps the most remarkable dispensation on record is one granted by

had been taken; and therefore, in the strict sense of the term, these Cardinals were no longer laymen. The real state of the case is that the rank of Cardinal is an ecclesiastical dignity, but that practically it has been conferred on laymen by the intervention of a fiction like that invented to make Protestants capable of receiving the cross of St. Louis in France, which was given only for ninety-nine years to heretics, who forfeited it, if still unconverted at the end of that period. So also laymen were named Cardinals only for twelve months, being bound within that period to take deacon's orders; but then the same plenary power which had elevated them could extend its favours to an indefinite renewal of the expired dispensation at the end of each year. By the Bull of Pius IV. it was, however, distinctly ruled that no Cardinal still a layman could exercise the privileges of his dignity in Conclave. To be entitled to vote in the election of a Pope he must have taken deacon's orders, and this rule has been observed in practice until in Rome it is the general off-hand statement that this is so fixed by canon law. But here we find, on going to the fundamental authorities, that, as is so often the case in all matters connected with the subject of Conclaves, the current version is not accurate. In Gregory XV.'s (1621-23) elaborate Bull and Ritual, which are at the present moment the ruling statutes for Papal elections, it is distinctly laid down that this exclusion is only against such lay Cardinals as may not be furnished with a specific Papal dispensation. The power of especial favour here recognised has not been exercised generally, and it may be practically correct to say that lay Cardinals have had, as a rule, to take orders before being admitted to a Conclave. In this century, this was certainly the case with Cardinal Albani, who became a deacon only when in 1823 the Pope's death offered the opportunity of giving a vote.[1] One instance of a lay Cardinal

Alexander III. for the express purpose of preventing the extinction of the Giustiniani family, then reduced to one male member, Niccola Giustiniani, a Benedictine monk who has since been beatified. In virtue thereof Niccola left his convent, married the daughter of the Venetian Doge Micheli, and when he had begotten a sufficient number of sons to secure the continuation of the line, went back to his religious profession. Amongst the curiosities of Papal history that are little known, is the fact that the chair of St. Peter has been occupied successively by father and son—Pope Silverius, 536, who was followed by his son Hormisdas. In this instance the Pope had become a widower before election. But in the third portion of the *Annales Bertinianorum*, written by the celebrated Archbishop Hincmar, and to be found in Pertz, *Mon. Germanica*, vol. i., there is given an account of the abduction of the daughter and the *wife Stephania of Pope Hadrian* in 868—that is to say, a period to which the Archbishop was a contemporary witness. The story is narrated with much detail, and with the names of all the parties implicated.

[1] Cardinal Albani's proceedings are recounted in the following way by Crose, Sardinian Envoy to Rome, in a confidential despatch: 'Another

admitted to Conclave did, however, certainly occur when Sixtus V. was elected (1585). The Cardinal Archduke Albert (who eventually married) arrived in hot haste from Innspruck, and having exhibited his license from the late Pope, was permitted to co-operate with his fellow Cardinals in giving a new chief to Catholic Christendom, although, as is explicitly stated, he never had taken any orders. At the present moment there are no lay members of the Sacred College; but this is so only since, quite recently, the reigning Pope expressed his desire that those amongst the Cardinals who had not taken deacon's orders should do so. Amongst the number was Cardinal Antonelli.

A freshly-named Cardinal is subjected to a form of novitiate, during which he is technically said to be *cum ore clauso*, being invested with the symbols of his rank, but precluded from uttering an opinion on or taking an active part in any matters falling within a Cardinal's sphere, until he shall have been relieved from apprenticeship by the Pope *solemnly unsealing his mouth*. Of late this phase of preparatory state has in practice been reduced to a mere form—the *closing* injunction and the *opening* confirmation in full rights being performed in one consistory. Still, this is as yet an innovation, without written authority, and a return to stricter observance of primitive custom is at any time quite possible. At the time when this novitiate was a reality, it was a matter of importance to decide how far this limitation of powers in a Cardinal actually created could extend even to the suspension of the franchise belonging to his rank in the event of the Pope's demise before his mouth had been solemnly unsealed. Eugenius IV. (1431-47), by a Constitution, prohibited Cardinals in this state from taking part in elections; but that prohibition was repealed by Pius IV., and the question must be considered absolutely set at rest by the confirmatory ruling of Gregory XV., that every *promulgated* Cardinal (in distinction to those *in petto*) has an inalienable right to participate in Conclaves, which ruling has been still further confirmed by the circumstances which marked the Conclave

historical observation is supplied by Cardinal Albani, who at the period of Conclave was not yet ordained. Until then he had always expressed an intention to abandon the purple and to marry, with the view of not letting his most noble family become extinct. While in this state of hesitation, he had always obtained from the Pope a prolongation of the terms within which he had to come to a decision; but it happened that this term would have expired just during Conclave, so that he would have been obliged to go out of it, inasmuch as, during the vacancy of the See, there existed no authority which could renew the requisite authorization. From a sense of this, Cardinal Albani made up his mind to become Sub-deacon on entering Conclave, and thus he was qualified to exercise his influence in behalf of the Imperial Court.'—Bianchi, *Diplomazia Europea in Italia*, vol. ii. p. 389.

convened on the death of Clement IX. in 1670. At that moment there were seven Cardinals *cum oribus clausis*. All went into Conclave, and one of their number, Altieri, came out of it as Pope.

A Cardinal's right to record his vote at Papal elections is regarded as so sacred that it has been guarded by perfectly exceptional provisions, such as seem to constitute in canon law the single limitation set on the Pope's plenary authority. It has been distinctly ruled that no censure, suspension, interdict, nor even *excommunication*, can involve forfeiture by a Cardinal of his right to exercise this specific privilege of his order. There is no more startling provision in the whole Roman organization; indeed it is so startling that many Catholics will be disposed at the first blush to doubt its authenticity. Yet does this enactment stand not merely as an obsolete curiosity on some forgotten page in the statute-book; Roman Curialists hold it to be still in full force, and when the last case in point occurred, in 1740, with Cardinal Coscia, it was invoked, and strictly acted upon without discussion. The principle dictating this provision is to be found in the feeling (very natural in times of bitter feuds) that, unless this particular privilege of Cardinal were set beyond the reach of confiscation, a Pope of strong partisan views would have only to impose from his plenary authority ecclesiastical penalties to disable Cardinals of a faction opposed to his own from having any weight in the choice of his successors. Nor were such apprehensions without their warrant in facts. Like all the organic laws concerning the mode of Papal elections, this provision was due to no abstract theory, but was simply the result of a want that had been practically encountered. On the 10th May 1297, Boniface VIII., blinded by furious passion against the house of Colonna, excommunicated and *degraded* from their rank the Cardinals James and Peter Colonna, declaring them stripped of every privilege appertaining to their dignity. The extraordinary severity of a sentence, manifestly dictated by the bitter hatred of family feuds, because not justified at the moment of promulgation by adequate canonical delinquencies on the part of these Prelates, produced a profound sensation. It was evidently a point of principle with Boniface VIII. to wield his power for extermination of the Colonna influence, if not for actual extinction of the race. Solemnly degraded from their rank, these Cardinals, on the death of Boniface, found themselves excluded from the Conclave, and vainly sought from his successor restitution to rights which they declared to have been taken away in defiance of justice. The consequence was a protracted state of angry feelings, rendered formidable by the material power of the mal-

content Colonnas, and accompanied by muttered protests against the canonical legality of a situation in which dignitaries of the Church were arbitrarily excluded from their inherent prerogatives. A sense of the danger to be apprehended from the recurrence of arbitrary acts of the same nature was awakened. It was felt that a Pope of headstrong passions like Boniface VIII. must absolutely be precluded from exposing the Church again to grave peril for the sake of purely personal hatred and ambition. Accordingly, just thirteen years after the memorable degradation of the Colonna Cardinals, a Bull in reference to Papal elections was issued by Clement V., in which the following most remarkable clause was inserted:—'But in order that, as concerns the before-mentioned elections, dissensions and schisms be so much the more avoided, as the occasion for dissent is removed from those elections, we decree that no Cardinal may be expelled from the said elections on the ground of any excommunication, suspension, or interdict whatsoever.' The provision thus made has been subsequently confirmed by Pius IV. and Gregory XV. in so full a manner as to remove all ambiguity on this head, for not only have those under sentence been declared relieved at election times from the disabilities involved thereby, but, what was quite as necessary, their colleagues were dispensed, during this interval, as regarded them alone, from the obligation to hold no intercourse with an excommunicated and censured individual. There are instances of Cardinals who since this enactment have undergone extreme penalties, even decapitation, but we know of no instance in which this particular provision in regard to the indelible right of franchise has been set at naught. In the time of Leo X. several Cardinals were convicted of a conspiracy against his life. Of these, one, Cardinal Petrucci, was strangled in the Castle of St. Angelo on the 6th June 1517, while Cardinals Saoli and Soderini were indeed degraded, and declared stripped of both *active* and *passive* voice in a Conclave—that is, of the power of either *voting* or *being elected;* but this sentence was cancelled before the Pope's demise tested its validity. Under Leo's successor Cardinal Soderini again stood convicted of conspiracy, and was imprisoned in the Castle of St. Angelo; but on the last day of the Pope's obsequies he was let out by the Sacred College, and gave his vote in Conclave for Clement VII., by whom he was then restored to all the honours of his rank. But the ruling case on this point is that of the notorious Cardinal Coscia, who under Benedict XIII. (1724-30) wielded the whole power, and dispensed the whole patronage of the State. On this Pope's death, his favourite was so universally an object of detestation, from his iniquitously corrupt proceedings, that

he fled from fear of popular vengeance to Cisterna, then as now the family seat of the Duke of Sermoneta, who, in a letter to Cardinal Barberini, preserved in the Gaetani archives, describes him to have arrived more dead than alive from fright. Under the protection of a safe-conduct from the Sacred College, Coscia stole back into Conclave. The new Pope, Clement XII. (Corsini), was unable to withstand the clamour of denunciation which from all sides was raised against the member of the Sacred College. Cardinal Coscia was brought to trial for fraud, malversation, and peculation of the most scandalous kind; the charges were fully established, and he was sentenced to a fine of 200,000 crowns, to ten years' close confinement in St. Angelo, deprivation of his see of Benevento, and to absolute degradation from the rank and privileges of the Cardinalate. Before long the Pope felt misgivings about the sentence so pronounced, and wrote a Chirograph bearing date 11th December 1734 to regulate and modify the conditions of Coscia's penalties. This Chirograph we have found in a volume[1] of manuscript documents in the Corsini Library, relating to the Conclave held on the Pope's death, which is manifestly composed of papers that belonged to the Cardinal-Nephew of Clement XII. There does not exist a more remarkable Papal utterance than this document, wherein the Pope explains fully the afterthought that induced him to revoke his first sentence as objectionable, if not actually faulty in principle, in spite of his having pronounced it, as he admits, with the deliberate intention of cancelling the binding force of previous Papal edicts of limitation. That a person labouring under such grave convictions as Coscia should have part in creating a Pope was contrary to propriety; therefore, said Clement XII., it had been originally pronounced that every election in which he intervened should be *ipso jure* null and void, 'every power and faculty being taken away of calling the said Cardinal Coscia to give his vote in such election on the ground of any claim or motive specified in canon law, or in virtue of any Constitution whatsoever of Pius IV., Gregory XV., and other our predecessors.' A more carefully worded expression of Pontifical plenitude so as effectively to override every apparently opposing enactment cannot be conceived. Yet Pope Clement goes on to state that having reflected on the grave consequences that might follow on such annullations and invalidations, he feels himself bound to put forward the declaration that he did not in any way pretend of his authority to impugn the validity of a yet future election. 'Wherefore,' writes the Pope, 'we declare that never has it been our wish or intention to prejudice the canonical election of our successor, or the supreme dignity and authority of the Church

[1] Vol. 1618 in Catalogue of MSS. in Corsini Library.

which, after our demise, shall be lawfully vested in the person of him who has been chosen with the accustomed forms, it being according to neither reason nor equity that the transmission to his person of a penalty attaching to the delinquent be assumed capable of occurrence, and that injury should befall the freedom and union of the Apostolical College in its so needful mystic body.' By this Chirograph the Pope accordingly abrogated the sentence stamping with invalidity an election in which Coscia took part, with the proviso, however, that an election, to be canonical, must not gain its obligatory majority of two-thirds by his individual vote, and that during his ten years of strict confinement this Cardinal's electoral privileges should be restricted to voting, and not entitle him to obtain the suffrages of the Sacred College, because it would be unseemly to consider eligible for Head of the Church an individual let out of prison only for as long as Conclave lasted. This is what happened therefore on the death of Clement XII. In the same volume containing the chirograph, there is the autograph letter of Cardinal Coscia, dated the 6th February 1740, from the Castle of St. Angelo, and written to the Cardinal-Nephew of the late Pope, in which he claims to be set free for admission to Conclave, a request which was at once conceded. The President de Brosses, as he was going home from witnessing the procession of the Cardinals walking to Conclave, met 'Coscia in the shut chariot of Cardinal Acquaviva, who had been to fetch him from prison in the Castle of St. Angelo, and was taking him to his cell.'[1]

The precedent furnished by this case has never been reversed, although sentences of degradation have since been launched against Cardinals. In a secret Consistory of the 13th February 1786, Pius VI. suspended and declared stripped of *both active and passive voice in Papal elections*, Cardinal Rohan, for having violated his duties by acknowledging the jurisdiction of the Parliament of Paris, a lay tribunal,[2] unless within six months he exculpated himself before the Holy See for this dereliction of his obligations. Far more sweeping and absolute was the condemnation pronounced by the same Pope on the 26th September 1791 against Cardinal Lomenie de Brienne, for having sworn the civil constitution of the clergy that had been voted in France. He was pronounced to be a schismatic, and as such perjured, degraded, and wholly stripped of all his dignities and privileges. But it happened that both

[1] 'Coscia, Minister under Benedict XIII., meriting the gallows—condemned to imprisonment for life in St. Angelo, where, it is said, he throve wonderfully, because it cost him nothing, and he was hoarding money,' is the character given by the President of the notorious Cardinal.

[2] In the matter of the Diamond Necklace.

these Cardinals died before there had been any opportunity for testing the validity of these sentences to disable them from claiming at election time to be admitted to the exercise of indelible rights. The stormy days in the wake of the French Revolution furnished also some instances of Cardinals smitten with the prevailing passion for repudiating old-fashioned institutions, and indulging in a display of new ideas. During the heyday excitement of a republic that seemed established on the Capitol, two Cardinals, of whom one belonged to a great and princely family in Rome, thought it good policy to turn their backs on what looked like a foundering fortune. In March 1798, Cardinal Altieri wrote to the Pope expressing his wish to divest himself of the purple, on the ground of a growing sense of bodily infirmities. But Pius VI., who knew that other motives prompted the unusual application, addressed a letter to the Cardinal, remonstrating against his setting an example of faint-hearted desertion. Before this appeal reached Cardinal Altieri, he had however already taken an irrevocable step, and sent his absolute renunciation of the Cardinalate to the Pope, in imitation of Cardinal Antici, who, on the 7th March, had done the same in two letters, one addressed to the Pope, and the other to the *two consuls* of Rome. Yet Pius VI. declined to accept these renunciations, and continued to regard the two renegades as still Cardinals, and canonically not relieved from their obligations, until the consideration of the consequences that might follow from their claiming, in virtue of this refusal on his part, to take part in the Conclave, induced him from his prison at the Certosa, by two briefs of the 7th September 1798, to declare Altieri and Antici, on their own renunciation, stripped of all the privileges and rights appertaining to their former dignity, especially any voice, active or passive, in Papal elections. Altieri died soon after, in 1800, without seeing any turn in Pontifical fortunes which might have made him regret his step as hasty. Not so Antici, who not only witnessed the restoration of Pius VII. to his dominions, and of the Sacred College to its good estate, but when he looked on all this pleasant recovery, tried himself to participate in it. On the death of Pius VII. Antici addressed the Sacred College to be admitted to the Conclave, on the plea that his privileges had been merely superseded. The request was at once rejected, and Moroni says that the letter written in reply to the communication of this decision was signed Thomas Antici, *late Cardinal.* He ended his days in obscurity at Recanati.[1]

[1] The latest case of a Cardinal divesting himself of the purple occurred in 1838, when Cardinal Odescalchi insisted on entering the order of the Jesuit monks, and would not be content until the Pope in Consistory had acquiesced in his ascetic propensities.

The question of how far a Cardinal can be stripped of his privileges by the Pope has recently acquired interest in connexion with the proceedings understood to have been instituted against Cardinal Andrea. That prelate left Rome surreptitiously about two years ago, and took up his residence at Naples, on the plea that his health absolutely required a change of residence, for which he had vainly sought the Pope's sanction. By a bull of Innocent X., a Cardinal absenting himself from Rome without the Pope's permission, is declared liable to forfeit all emoluments from any benefice he may hold. It is confidently asserted that the intention was entertained at Rome to exceed the limits of these penalties. The political opinions to which the Cardinal has freely given expression inspired the Pope with the desire to degrade him completely, so as to prevent his possibly proving the means for the importation of an element of disunion in the next Conclave. For a while it was whispered that the appointed congregations were actually engaged in drawing up the capital sentence against the recusant Cardinal—a sentence which would at the same time elevate the absoluteness of Pius IX. to a point beyond all challenge. Nevertheless, no such sentence has been promulgated, and hitherto the Cardinal has suffered only that loss of income to which he was liable by the terms of Innocent the Tenth's Bull; nor is it believed that the original idea of proceeding to extreme penalties is any longer entertained in the Vatican. It may therefore be considered an established point, surrounded with as many guarantees as can exist against the action of an authority which claims in principle to be above all limitations, that a Pope may send a Cardinal to the scaffold, but that he cannot, by any sentence of excommunication or degradation, deprive him of the power of giving his vote at a Papal election. Everything else can be taken away, but this right, once conferred, would seem to be indelible, except in the one case of a Cardinal having himself discarded the purple, when precedent proves him to be certainly debarred from again resuming it of his own accord at a change of humour.

As the Quirinal Palace contains only one chapel, the Paolina, this has to be arranged so as to serve the Cardinals both for mass and voting. The balloting accordingly takes place in the presbytery, in front of the altar, the floor of which, covered with a green carpet, is brought on a level with the base of the pontifical throne, which is removed; while on the Gospel side of the altar a chair is put for the new Pope, from which to receive the adoration of the Cardinals immediately after election. Inside the railing of the presbytery are the seats of the Cardinals, each with a canopy of green for those of older date,

and of violet for those created by the late Pope. As soon as an election has taken place, these are lowered; the canopy over the new Pope remaining alone aloft. Before each Cardinal is a table, with all the materials required for writing and registering his vote, while in the middle six such tables stand apart for those Cardinals who might fear being overlooked if they wrote and folded their ballot-papers at their own stalls. On the Gospel side the Cardinal Dean occupies the first seat, being followed by the others in the order of precedence, so that the senior Deacon sits opposite to him on the Epistle side of the altar, in front of which is a large table, with the chalice serving as a ballot-box, while at the back is the fire-place, wherein, after an inconclusive ballot, the papers are burned, whose smoke, issuing through the chimney, is watched for at a set hour by the crowd on the Piazza as the signal that Rome is still without a Sovereign,—the Church still without a Head.

The ingenuity of some ecclesiastical antiquaries has amused itself in fancifully recognising infinite variations in the modes of Papal elections. But even if warranted in fact, these distinctions must be held to be without any living value, for the bull of Gregory XV., which is the capital statute on the subject, explicitly declares that there are only three modes in which a Pope can be lawfully created: by *inspiration*, by *compromise*, and by *ballot*. The first, which requires that, spontaneously, without any kind of previous conference, all the electors of one accord should simultaneously proclaim the same individual, may be dismissed without further comment as an altogether ideal conception,—in spite of ecclesiastical writers giving a list of Popes created by this process. Of much greater practical importance are the conditions regulating the second form, which we have seen was invented by the instinct of the Church as a means to put an end to the intolerable state of affairs which weighed upon it in the interminable Conclave held at Viterbo. The expedient of delegating to a small committee of Cardinals the power which the whole body found itself too much torn by dissension to exercise, has been resorted to on several occasions, and is still considered in Rome as not obsolete. The most memorable instance of its application was furnished when the impossibility for the Cardinals assembled in 1304 to agree on a candidate induced them to intrust the election to a delegation out of their own body, which gave to the Church Pope Clement V. (1305-14), who then transferred to Avignon the Holy See. It is affirmed by the Cavaliere Borgia, in the life he wrote of his uncle, Cardinal Borgia,[1] that when the Conclave held at Venice, after the decease of Pius VI. (1799), reached the third

[1] *Notizie Biografiche del Card. St. Borgia del ch. Constantino Borgia*, 1843.

month, it was contemplated to invest nine Cardinals, amongst whom was his uncle, with the duty of selecting a Pope, and that the idea was not followed up only because at the nick of time the votes of the College happily concurred in creating Pius VII. It is true that here again Consalvi's Memoirs fail in speaking to the correctness of this assertion; but, as we have before remarked, the absence of such confirmation in this quarter does not seem to us of itself necessarily to invalidate its authenticity. Gregory XV. has closely prescribed the form to be employed for the mode of election, but they are not of his own invention, being only an adaptation of those already contained in an ancient Ritual by Cardinal Giacomo Gaetani Stefaneschi, to be found in Mabillon's *Museum Italicum*.

The ordinary election by ballot is performed by two processes repeated daily,—one in the forenoon, which is a simple ballot; the other in the afternoon, which consists in the process technically called *of acceding*, whereby an elector, revoking his morning's ballot, transfers his vote to some one whose name had that morning already come out of the ballot-box. Hence the designation of the supplementary ballot, for in it the faculties of electors are strictly limited to the power of adhering to some Cardinal whose name at the early ballot has been drawn. The voting papers are square, and folded down, so as at each end to have a sealed portion, within the upper one of which is written the voter's name, to be opened only under special circumstances; and in the other, sealed with the same seal, some motto from Scripture, which, once adopted, must be the same at all ballots, and serves ordinarily as the means for identification of the vote. In the middle space, which is left open, stands the name of the candidate. Advancing to the altar, after a short prayer in silence, and an oath aloud, wherein the Saviour is called to witness that the vote about to be given is dictated by conscientious convictions, each Cardinal drops his paper in the chalice upon the altar. When all have voted, the examination of the papers is made by the scrutators, three Cardinals selected by lot, who successively hand to each other every paper, which is by the last filed on a pin. Should a candidate come out with just a majority of two-thirds, it then becomes necessary to open the upper folded portions of the ballot-papers, with the view of ascertaining that this majority is not due to the candidate's own vote; it being not lawful for a Pope to be the actual instrument of his own creation. In the case of no adequate majority, these papers are preserved, so as to be able to check, through the mottoes, the votes given in the supplementary ballot, it being, of course, unlawful for a Cardinal to repeat a second vote in behalf of the candidate for whom he had already voted

in the morning. The form of tendering this second vote is by writing '*Accedo domino Cardinali,*' while those who persist in their morning's choice insert the word '*Nemini.*' Should both ballots fail in producing the legal majority, then the papers are burnt, while in all cases the portion containing the voter's name is to be opened by the scrutators only in the event of some suspicion of fraud or of a vote being invalid, through some violation by the elector of the prescribed forms. In the Conclave of 1829 Cardinal Castiglione came out of the ballot with thirty-five votes, against twenty for Cardinal Gregorio, and twelve for Capellari, afterwards Gregory XVI. On examining the papers, the scrutators, however, found two votes dropped into the afternoon ballot with mottoes that did not tally with any amongst the morning's votes. Two Cardinals are named as suspected of having committed this act, probably with the vain hope of defeating Castiglione's election. All it effected was to vitiate the ballot of the day, and on the following morning Castiglione became Pius VIII. by an increased majority. The election of Urban VIII. (1623) was put off for a day by a yet more unworthy trick. When the papers were being looked through one was found wanting, and, although the canonical majority had been secured, the election was nevertheless void—as every Cardinal in Conclave must lodge his vote. Suspicion fell on one of the scrutators, who is believed to have abstracted the paper from the chalice, and dropped it into his sleeve, solely to prevent an otherwise inevitable result from being arrived at that morning.

The narratives of Conclaves are filled with accounts of election manœuvres practised by plotting Cardinals with the view of bringing about, by underhand tactics, some preconceived result. The whole system of these proceedings bears the visible impress of that cautious and cunning temperament which never operates but under a mask, and never contemplates to work otherwise than by stratagem. Of these tricks the most common—indeed so common as to be an established feature in Papal elections—is the naming of sham candidates by the rival sections. The general object of this device is to elicit the exercise of the veto vested in certain Catholic sovereigns, and which can be given but once. If it be intended to carry a Cardinal known to be obnoxious to a sovereign possessed of this privilege, then some other Cardinal, also known to be distasteful to him, is started, and pushed to the very verge of the required majority, in the hope of causing the veto to be pronounced, when no obstacle from that quarter can any longer stand in the way of the concealed candidate, who had all along been the real object of predilection. The origin of this privilege of excluding from the Papacy is involved in mystery, but its

existence is formally recognised by the Court of Rome, although there has been much dispute about the claims which the Crowns of Portugal and Naples always put forward to its possession.[1] As regards France, Austria, and Spain, the privilege is, however, absolute; and its exercise is surrounded with all the accurate formality of a publicly admitted right. On the occurrence of a Conclave, the secret determination to protest against particular Cardinals is confided by each Court to some member of the Sacred College, who is trusted with the duty of making this known at the proper moment; or, in the event of a Court having no Cardinal on whose fidelity it can rely, then this knowledge is deposited with the Cardinal Dean. For a protest to have effect it must, however, be lodged before a canonical majority has been actually obtained; for a Pope, once created according to the prescribed forms, cannot be unmade by the intervention of any power. So it is said that in 1823 Leo XII. owed his election to a surprise—the French Cardinals, Clermont and De la Fare, who were instructed to exclude him, having been outwitted by the stealthy suddenness of the final ballot. The latest instance of exclusion was in 1831, when Cardinal Giustiniani was excluded by Spain, at which Court he had been Nuncio. Moroni gives a detailed account of the proceedings observed on this occasion. The Cardinal was visibly on the verge of election; on the day's ballot he counted twenty-one votes, and it wanted only twenty-nine to secure his triumph, when Cardinal Marco-y-catalan informed Cardinal Odescalchi, nephew to Giustiniani, and the Cardinal Dean Pacca, that he was charged to exclude him by order of the King of Spain. The communication was not expected, and doubt was expressed as to the reality of this expressed intention. Thereupon Cardinal Marco produced a letter from the Spanish ambassador, Gomez Labrador, dated 24th December 1830, instructing him, 'at the express order of his Catholic Majesty, to exclude his Eminence Cardinal Giustiniani from the pontifical throne.' This despatch the Cardinal Dean then read out to his assembled colleagues before proceeding to the morning ballot on the 9th January, after which Cardinal Giustiniani addressed them, expressing ignorance of what he could have done to make the King of Spain take this step, but professing to thank him for the greatest favour he could have bestowed by keeping him from the Papal throne.[2] '*Semel exclusus semper exclusus*' is a say-

[1] The claims of the latter would naturally descend to Italy.

[2] At the Conclave of 1824 Austria excluded Cardinal Severoli through the agency of Cardinal Albani. A despatch of the Sardinian representative in Rome, published in the valuable appendix to the second volume of Bianchi's *Storia della Diplomazia Europea in Italia, dell' anno* 1814 *all' anno* 1861,

ing not absolutely true; for Clement VIII. had been excluded in three Conclaves by Spain, and Innocent X. was elected with a French exclusion suspended over him. As for the category of Cardinals who have the best chances of gaining the suffrages of their colleagues, there is a Roman proverb which says that three are the streets leading straight to the Vatican, those of the Coronari (rosary-makers), Argentieri (silversmiths), and Lungara (long street):[1] which is taken to mean that much outward show of devotion, expenditure of money, and an industrious swarming up the ladder of ecclesiastical routine, are the three safest means of reaching the Pope's throne.

In canon law there are no limitations restricting the selection of a Pope within the body of Cardinals. It is true that since Urban VI., in 1378, no one below this rank has mounted the chair of St. Peter, but still it is worthy of note that this now established practice exists in virtue of no higher sanction than custom, and that there is nothing in canon law to render invalid even the choice of a layman for the Papacy.[2] John XIX. (1024) and Adrian V. (1276) were certainly laymen, and the latter furnishes the conclusive precedent establishing that a Pope acquires all the plenitude of his supreme authority by the simple act of election, for Adrian V. died without taking any orders, and yet he promulgated decrees modifying the whole system of Papal elections, which, by his successors, were held to be invested with all the sacredness of Pontifical utterances. Adrian V. ruled but twenty-nine days, in which interval he repealed of his authority the electoral constitution of Gregory X., which remained in abeyance until Celestine V., after six

gives very curious details of the incidents that marked this proceeding. The veto was so unpopular, that it was sought to be set aside on the plea of Cardinal Albani's not having been duly invested with the formal authority to exercise this privilege on its behalf by the Court of Vienna; so that Severoli continued to poll votes after the protest had been lodged, until Count Apponyi, then Austrian ambassador, handed in a note, the text whereof is given by the Sardinian diplomatist confirming Albani's authority. The Cardinal's exclusion was conveyed in the following terms: 'In my capacity of Extraordinary Ambassador to the Sacred College met in Conclave, . . . I fulfil the displeasing duty of declaring that the Imperial Court of Vienna is unable to accept His Eminence Severoli as Supreme Pontiff, and gives him a formal exclusion (*gli da una formale esclusive*).'

[1] There are three streets in Rome with these names.

[2] There is indeed a decree by Stephen III., 769, against the election to the Papacy of any one not an ordained *Cardinal*, but this decree, which was levelled against the anti-Pope Constantine, who happened to be a layman, has never been invoked on the occasion when the choice of the Sacred College fell on an individual not of their body, nor is there any other pontifical utterance on record in the same sense. Moroni himself admits that John XIX. was a layman when elected, but preserves an ambiguous language in regard to the case of Adrian V.

stormy elections, revived it in 1292. Undoubtedly such cases must be set down as obsolete in the concrete, yet at a critical moment like the present, when the Court of Rome is again imminently exposed to transformation, it is well to note remarkable instances of exceptional interventions which have been admitted by it, as at all events not beyond the pale of its principlei.

In practice the *final* ballot is a mere formality. As soon as it is perceived that a canonical majority in favour of a candidate is really commanded, the matter is made known to the opposite party, so that acquiescing in defeat, its members may join in waiting on the future Pope the evening before his actual elevation. The contest therefore ceases habitually on the night before proclamation, and when the Cardinals, on the last morning, proceed to ballot, they do so, as a rule, with the perfect knowledge that they are going through a mere formality.

As soon as the ballot has furnished a return with a majority of two-thirds,—the scrutators having satisfied themselves in the event of its being a bare majority, that this is not due to the successful candidate's own vote,—and he himself has accepted the choice fallen on him, the Conclave is declared at an end, the doors are thrown open to the world, and in the chapel, where all the canopies are instantly lowered, except that over the newly elected, the Pope receives the homage of the assembled Cardinals, which is called the first act of adoration. Then, from the reopened balcony window, which has been walled up, the Cardinal Dean proclaims the new Pope, whose acclamation by the applauding Roman people is formally attested in a deed drawn up then and there by an appointed notary. Since the Quirinal has become the site for Conclaves, it has been customary to postpone the remaining ceremonies till the following day, when the Pope proceeds first to the Sistine Chapel, and afterwards down to St. Peter's, into which he is borne upon the *sedes gestatoria* to receive the second and third adorations. Seated on a cushion placed upon the high altar, the Pope has his foot and hand kissed in succession by each Cardinal, whom he in return embraces on both cheeks, the Cardinal Dean opening the ceremony and chanting the *Te Deum*, while his colleagues are performing their parts. This over, the Pope bestows upon the assembled multitude his public benediction; after which he returns to his residence every inch a Pope.[1] There are indeed two other remarkable

[1] The question as to when the creation of a Pope is consummated has been accurately discussed by Catholic writers, and it has been distinctly laid down by the highest authorities that election of itself invests a Pope with plenary powers. 'Qui eligitur Rom. Pontifex,' says

ceremonies of ancient origin connected with the installation of a Pope which must be noticed; but neither will be found to involve on his part any formula of oath or obligation. At an early day after election, in general on the following Sunday, the Pope is enthroned in St. Peter's, when he is crowned with the celebrated triple crown, the tiara. The ceremonies observed on this occasion are in part marked with a strange symbolism. In the Atrium of St. Peter, opposite the walled-up gate called La Porta Santa, which is opened only in the years of Jubilee, the Pope, seated on a throne, receives first the homage of the archpriest and all the clergy attached to the Basilica. This over, he is carried in procession up the church to the Chapel of St. Gregory, which is converted into a robing-room. On issuing from it a Master of the Ceremonies suddenly steps forward, and arresting the Pope on bent knee holds up to him a silver rod tipped with a bundle of tow, which a clerk sets on fire from a taper in his hand, the former officer singing aloud, '*Sancte Pater, sic transit gloria mundi.*' This curious piece of symbolism is repeated twice. At the high altar the Pope is clothed with the Pallium, and on the termination of mass, during which occurs the homage of clergy of all ranks, the Pope is borne in procession up to the balcony overlooking the piazza of St. Peter, where, in presence of the assembled people, the mitre having been first removed, there is placed on his head the renowned triregnum, by the second senior Cardinal Deacon, who pronounces the words 'Accipe tiaram tribus coronis ornatam et scias te esse patrem principum et regum, rectorem orbis, in terrâ vicarium Salvatoris nostri Jesu Christi, cui est honos et gloria in sæcula sæculorum.' And with this ends the coronation after the giving of the benediction, which always follows every Papal appearance in public.[1] The other ceremony is the taking possession by the new Pope of the

Bellarmine, *De Rom. Pont.* lib. ii., cap. 22, 'eo ipso sit Pont. summus Ecclesiæ totius, etsi forte id non exprimant electores.' Clement v. excommunicated those who 'asserere non verentur quod summus Pontifex ante suæ coronationis insignia se non debet intromittere de provisionibus, reservationibus, dispensationibus et aliis gratiis faciendis;' and Moroni, who enters at length upon the question, and must be considered the organ of the Court of Rome, declares that a Pope must necessarily be in possession of all his power from the instant of election, although he admits that this opinion has prevailed in the Church only since the days of Adrian v., the Pope who died a layman.

[1] A widely accredited error is that the benediction by the Pope from the balcony of St. Peter at Easter is given *urbi et orbi*. The phrase does not occur in the ritual, and has no authority whatever. Another popular error, to be found especially in the travels of the last century, is that at the coronation service there is chanted an anthem with the words *Non videbis annos Petri*. A curious and little known form was, however, observed on

Lateran Basilica, the Metropolitan Church not merely of Rome, but the Universe, as stands written upon the inscription on its front. On this occasion, the Pope traverses the whole city of Rome in solemn procession, accompanied by all the Cardinals and the representatives of all the ecclesiastical hierarchy connected with the Court of Rome. Down to a very recent time it was customary for the Pope to ride a white steed, and to be escorted by the Sacred College on horseback. When Pius IX. made his progress to the Lateran, he expressed his desire to revive the practice, but the idea was abandoned owing to the remonstrances of the many very aged Cardinals, who protested their incapacity to sit on their horses for so long a ride. It was also the custom for the Jews to line the portion of the way between the Arch of Titus and the Coliseum, and there to present in sign of homage a copy of their law to the Pope; but since Pius VI.'s time they have been dispensed from this service. The ceremony in the church itself offers nothing that calls for special observation. It is simply an act of taking possession, unaccompanied by anything which implies a conditional tenure dependent on the observance of any specified and defined vows.

In the controversy waged as to what Pius IX. should do in regard to recent events, the advocates of a policy of acquiescence in what has befallen his temporal estate, have been freely met by the assertion that as Pope he is bound by oaths which absolutely interdict his doing so. On looking into the matter it will appear however that this is not correct. Whatever oaths Pius IX. has taken have been sworn to by him freely, and of his own accord, in the plenitude of his authority, and not at all as conditional to his acquisition thereof; as happens with Cardinals who are invested with the *berretta* only, after having repeated a prescribed oath. No Pope is subjected to any oath whatever, on being elevated to his supreme dignity, and if, at a later moment, it has been customary to swear the observance of certain ancient constitutions, there is nothing to distinguish between the binding force of this oath and that of other oaths from which Popes are universally held to be able to absolve themselves, and from which, in regard to the very points under discussion, they have actually on several occasions dispensed themselves.

Nevertheless it is a received custom for Popes to swear the observance of certain Bulls and Constitutions—amongst which is

that day until very recent times. When the Pope rose in the morning a bronze cock was carried to him in procession, to call to his mind, at that solemn moment of elevation, the frailty of which Peter was guilty, and to which human nature is exposed.

one having special reference to the preservation free from waste of the endowments of the Church,—but these oaths are taken of their own free will, and in the exercise of their absolute powers, and by no means as necessary to their legitimate acquisition of full pontifical authority. Soon after election the Pope holds a Consistory, but there is no fixed period when it must meet. Its convocation depends on his pleasure, and generally happens not more than two months after accession. On this occasion the new Pope has been in the habit to record his solemn adherence to divers regulations and instructions that have emanated from various predecessors, amongst which are to be particularly named a Bull by Julius II. (1503-13) declaring *ipso facto* void a Papal election due to simoniacal practices, and a Bull by Alexander VII. (1655-67) against the alienation of Church property. This is the instrument that has been invoked with much pertinacity by those who affirm that, in the matter of his temporal estate, the Pope is bound by ties absolutely depriving him of the power to make surrender of dominions he has succeeded to. We believe that it is necessary only to look a little into the history of this celebrated Bull to be convinced that there is no foundation for the exceptional sacredness thus ascribed to it, and which, if real, would at once limit the Pope's avowedly unbounded dispensing power in a perfectly preposterous degree.

The Bull of Alexander VII. does not profess to be an original statute, but merely a revival and confirmation of enactments by former Popes that had been either repealed or lost sight of, and the texts whereof are incorporated at length in this deed. The first of these instruments, and therefore the groundwork of the whole Bull, is one issued by Pius V. in 1567, which begins by expressing grief that 'divers persons too ambitious and covetous of rule' should have ventured to inveigle several Popes by false suggestions of policy into the step of infeoffing, under various titles, possessions belonging to the Church, whereby these had become virtually alienated, to the signal impoverishment of that institution. Desirous to remedy this state of things, Pius V., as he goes on to say, had taken counsel with the Cardinals, who unanimously had sworn not only to observe the present constitution, but also 'neither to assent to any Pope's attempting alienation contrary to its tenor, nor to seek or *accept* any dispensation from the oath they had sworn to it.' Accordingly he proceeded to declare and pronounce all such infeoffments, grants, or alienations of Church possessions null and void, any persons guilty of counselling such hereafter, on any pretext, even of 'necessity or manifest utility,' incurring pain of excommunication by that fact; and to invest this Bull

with the highest character of sacredness, the Cardinals present in Consistory swore to it by proxy for their absent brethren, while it was also expressly ordered that this same oath should be administered to all future Cardinals *before* receiving the hat, and that it should be added to those taken by the Sacred College before entering a Conclave. Moreover, it was enjoined that a new Pope, 'after his accession, should promise and swear the same, and after his coronation reiterate his promise and oath by special confirmatory rescripts, and that if this, which cannot be believed, were to be refused or postponed by the Pope, then, in the first secret Consistory, the Cardinals, and specially their Dean, and with him the Capi d'Ordine, should incessantly and most pressingly with every instance ask, pray, and implore the observance of those presents, and take most diligent care that this should happen.' These very elaborate prescriptions received solemn confirmation in full from various subsequent Popes, until Gregory XIV. (1590) modified the binding force of the engagements he had himself sworn on accession, in conformity to custom, by the issue of a rescript highly illustrative of the absolute nature of Papal authority. This Pope, who reigned only a few months, was a vehement partisan of Spain in the war of the League, and was probably actuated in his relaxation of stringent obstacles in the way of turning property into money by his desire to assist Philip II. in his undertakings. The changes he wrought in the letter of the law were however shortlived, for Clement VIII. abrogated them by a Consistorial decree of the 26th June 1592, admitted into the body of Alexander VII.'s Bull, in which the very remarkable circumstances are recounted that marked Gregory's act of legislation. Pope Clement tells the world that as at 'a secret Consistory held at St. Mark's, on Friday the 13th September 1591, in which the opinions of the Cardinals present, amongst whom was His Holiness (Pope Clement himself), had not been asked for at all, and in spite of many distinctly speaking against, his predecessor had nevertheless declared and decreed that by the constitution of Pius it was not forbidden to infeoff anew a fief not yet lapsed, *when necessity or the manifest and true advantage of the Church* demanded this,—that the oath taken to it did not comprehend such a case,—and that no one could lawfully swear thus, because it would be contrary to the requirements and manifest advantage of the Church,—he therefore adjudged and ruled the aforesaid constitution to be henceforward so understood, that it would be unlawful for any one hereafter to speak or write otherwise thereof than as was then declared by him, in accordance with the contents of this decree and declaration.' The whole of the saving clause ruled by his predecessor Pope Clement then can-

celled, on the ground that the plea of requirement and advantage would only serve to leave a door open to alienations injurious to the Church, and this severe sentence against the personal disposition of Popes to enrich favourites at the expense of the institution they were elected to preside over was endorsed by Alexander VII., when he especially included the whole text of Clement's rescript in his elaborate confirmatory Bull of every stringent enactment by predecessors on this subject.

From these facts, it results clearly that, however great the solemnity which successive Popes sought to attach to these prohibitory declarations against alienations of Church properties, it yet never amounted to a sacredness inviolable even for Pontifical authority. The very circumstance of so many repeated confirmations by spontaneous Papal edicts would of itself be sufficient to set aside such a hypothesis. A dogma is not reaffirmed by successive Popes, but takes care of itself when once promulgated for all time, because its nature must be assumed to represent an eternal principle, which, once recognised, stands for ever an indelible member in the organism of the Church's doctrine. Moreover, the instance of Gregory XIV.'s declaration, and the terms of the reversal passed thereon by his successor, conclusively establish that there is no exceptional force for a Pope in the obligations attaching to this particular engagement. For Gregory XIV. had himself, in accordance with the original prescription of Pius V., confirmed on his accession the terms of the original bull, and yet in spite of this solemn act of adhesion had considered himself at liberty to issue his qualifying declaration of its meaning; while Clement VIII., who made no effort to disguise irritation at his predecessor's action, never introduced a word in the unfriendly language with which he mentioned his proceedings that implied a charge of Gregory's having exceeded the bounds of his lawful privileges —of having violated a fundamental vow—by those modifying declarations which he then was solemnly repealing in virtue of the same authority.

But even if we granted that there were aught in the oath so taken which put it beyond the range of the Pope's dispensing power to absolve himself therefrom, we must consider it a quite false reading of its obligations to make these refer to a limitation on the Pope's sovereign authority for surrendering territory in deference to dictates of policy and expediency. The whole scope of the Constitution was to set a check upon a prevailing system of scandalous favouritism by which habitually Popes enriched their relatives with possessions diverted, it might be said fraudulently, from their legitimate object. The monstrous custom of Nepotism, which attained proportions that

scorned all pretence at secrecy, was the object aimed at in the stringent provisions of these pontifical decrees, as every one who is not animated with a spirit of special pleading must see from their very wording. It is impossible for a candid mind to mistake the plain meaning of these very explicit and precise prohibitions levelled against making grants of Church property for the benefit of individuals, and against nothing else. The limitation of the sense attached to these decrees is so absolute, and so distinctly expressed, that only a deliberate spirit of perversion could venture on pretending to misunderstand its force. The groundlessness of the interpretations which it has been sought to set on the oath taken by the Pope is rendered still more clear by a second Bull he swears to along with the other, and which is coupled therewith as a sort of commentary and supplementary illustration. This Bull, issued by Alexander VII., and known by the title of 'Constitutio Moderatoria Donationum,' is so directly levelled against the immoderate grants made by Popes to their kinsmen as to name these without disguise, and to have put it beyond the stretch of the most wilful casuistry to attempt to twist the plain meaning of the text. A more confounding illustration does not exist of the practice once recognised in the Court of Rome than is here afforded by a Pope writing with a clearness such as to baffle the powers of misapprehension, or indulgent explanation. The preamble states that this Constitution is promulgated for 'the moderating of gifts and the distribution of ecclesiastical revenues to the kinsmen and connexions of the Pope, or to those adopted as such, and for the prescribing of safeguards to be observed in the assignment of favours which are said to have been at times granted by deputation, *per concessum*, during a Pope's sickness.' Accordingly it is ruled that a Pope may lawfully assist, should they be in want, his brothers, nephews, relatives, and connexions (*consanguinei et affines*), as also those whom he may have adopted as such, but only in the degree in which he habitually administers to the destitution of the poor who stand in no particular relation to him. Should any of the before-mentioned relatives enter the Church, it is enjoined that they shall be endowed with but moderate preferments; and in the event of any attaining to the Cardinalate, that they shall not be allowed to accumulate benefices exceeding in value 12,000 crowns a year, it being expressly conceded that such income shall proceed from holdings for life,—any additional but insecure income from preferments held at the Pope's pleasure not being included in this estimate of the portion due to Papal kinsmen. Furthermore, to obviate the recurrence of what has happened in the case of

favours granted by deputation during a Pope's sickness, and which exceeded what he would have sanctioned if acting for himself, Alexander VII. ordered that those invested with powers of deputation, even though by a Chirograph signed by the Pope's own hand, should under no circumstances be capable henceforth of granting any favour, except with the assent of two Cardinals, subscribing, in the Pope's presence, the deed of concession, which, without their signatures, shall be null and void. This Bull, issued in the first instance to restrain the arts and practices by which the spirit of the former prohibitions against Nepotism was evaded, stamps, beyond all controversy, the scope of those earlier Papal decrees with which it stands connected, and in conjunction with which subsequent Popes have sworn to it. The assertion, therefore, that the Pope (who, in every other respect, is invested with absolute powers exceeding those of every other Prince) holds his temporal sovereignty by ties involving a limitation on his executive, for which there is no precedent in the conditions attached to the tenure of any other Crown,—ties that would reduce him to the condition of a helpless bondsman in a matter recognised to lie within the province of every sovereign's individual discretion by the fundamental principles of monarchical government,—may be fearlessly pronounced to be as unfounded an allegation as the fact would be a glaring and unparalleled paradox.

We have now brought to a close our survey of the elements that exist in the living organization of the See of Rome in relation to that capital function of its system—Pope-making. Much which is curious might still be added on a subject so vast and abounding in strange incident, but our object has not been to write a history of Papal elections, but to point out the provisions existing in the constitution of the Court of Rome for such purposes, and the facilities these may furnish for new combinations, if by circumstances recommended as expedient. It will have been seen that an organism which at first sight appears framed on principles of the most rigid formalism, contains within it a vast stock of elasticity and capacity for adaptation to new forms. This faculty, as we have shown, has been called into play on various and capital occasions, and such departure from precedent, under a wise regard for policy, has each time been approved of by the concurrent conscience of generations in the Church. The great schism was healed by one of the boldest and most revolutionary measures on record,—the creation of what was a religious constituent for the nonce,—calling into existence for a special purpose an electoral assembly without precedent. On other occasions, Popes have of their own authority dispensed with the most time-honoured and the most

carefully enjoined prescriptions, when these were found contrary to sound policy; and the Church has never considered them to have exceeded their legitimate attributes by such stretches of authority. The constitution of the Court of Rome is therefore so far from being what it is generally supposed, a thing of strictly limited nature, over-weighted with the encumbrance of absolute injunctions, that it will be found, when the heart of the system is reached, to be actually one of the most elastic in existence. Let only the instincts of the body representing the Church be alive to a necessity, however new, and the body can at once, without taint of illegal and revolutionary pretension, recognise the existence of new conditions. There is in fact no limitation on the plenary power of the governing body, in spite of the stringent formalism within which at first sight it seems to be tightly bound. If, then, it be the case that the circumstances now besetting the Papacy exact concessions from it for the removal of otherwise insuperable difficulties, it is certain that there is nothing in the nature of its tenure which must on principle put it out of the power of the holder of that dignity to make freely any such concession as may be demanded by reasons of sound policy.

ART. II.—1. *Animal Chemistry.* By BARON JUSTUS LIEBIG. London, 1842.

2. *Die organische Bewegung in ihrem Zusammenhange mit dem Stoffwechsel.* DR. MAYER. 1845.

3. *The Food of Man in relation to his useful Work.* By LYON PLAYFAIR, LL.D. Edinburgh, 1865.

4. *On the Constituents of Food and their relation to Muscular Work and Animal Heat.* By J. C. DONDERS, M.D. Translated from the Dutch by W. D. MOORE, M.D. Dublin, 1866.

5. *Lectures on Animal Chemistry.* By W. ODLING, F.R.S. London, 1866.

6. *On the Source of Muscular Power.* By E. FRANKLAND, F.R.S. Jour. R. Inst. London, 1866.

ONE of the authors above quoted says that the origin of muscular force in man 'is the cornerstone of the physiological edifice, and the key to the phenomena of the nutrition of animals.' It is undoubtedly one of the most interesting subjects in physiology, and has long engaged the attention both of physicians and physicists. Their united aid has not, however, been given to the solution of the question, for disputes, often bitter and keen, have waged between the two classes of philosophers in relation to the influence exerted by the principle of life. The physicians, by means of their 'vital force,' could readily explain the most recondite process in the animal body, and no one could contradict their exposition, for this force is subject to no known laws, and the results of its operations are necessarily *sui generis.* The physicists, on their part, refuse to admit a vital force, made to dominate over the other physical forces, and compelling them to act out of their usual course. This vital force they believe to be but the expression for that harmonious combination of the usual physical forces, such as heat, light, electricity, and chemical affinity, which sustain and develop that marvellous creation—a living animal.

As usual in such antagonistic views, there is much of truth and value in both. Many operations, which physiology once ascribed to vitality, are now known to be due to chemical affinity. The partition of chemistry into its old main divisions of 'inorganic' and 'organic' is antiquated, for most of the substances supposed to be the product of vital action can now be made in the basins and retorts of the chemist. While there is probably no single constituent of the body, not even excepting albumen, which the chemist has not already made, or will soon succeed in making artificially, yet it must be borne in

mind that though he can constitute an organic compound, he has never approached the erection of an animal organ. The chemist may tear to pieces a living organ, and construct in the laboratory synthetically all its constituents, but he cannot put them together again, so as, by the appliance of physical forces, such as heat, electricity, or chemical affinity, to make them work with that harmonious combination which he views as life. The conflict between Pasteur and the advocates of spontaneous generation of living organisms is not yet ended, though, so far as it is gone, it is much in favour of the view that life does not arise through the action of physical forces upon matter, even under the most favourable conditions. If not capable of being generated spontaneously, life must reside in a germ, which may spread itself by continuity, according to Darwin and his supporters, or be individual and special for each kind of living being. Let us admit with the physicists that the body of an animal is a machine fed with fuel, and works by its combustion through levers, joints, and bands, in the manner of any steam-engine, still they do not tell us who is the engineer that keeps this machine in action. The heart, that most wonderful of organs, works incessantly, from the birth to the death of an individual, without any conscious effort on his part, and removed indeed altogether from his control. It is this superintending engineer who watches the working of the animal machine that physiologists call Life, and until physicists have much clearer conceptions than they now have as to how the combination of their forces produces the wise direction of them, they can scarcely deny that their opponents have a right to refer to this unerring superintendence as something beyond the truth hitherto revealed by physical science. Admitting, as candid physicists must do, that the residue of unexplained phenomena in the animal body may be due to a developed living principle residing in the embryo, but which has grown with the individual, and must therefore be obviously correlated to the known forces favouring this growth, we proceed to discuss the theories of the origin of muscular force or movement in animals, leaving out of consideration for the present the manner in which the brain issues its commands for the exertion of the power potentially present in the muscles.

We have already involuntarily fallen into the comparison of the body of an animal with that of a steam-engine. In fact, the Medical President of the Chemical Section of the British Association at Nottingham defined the living body of a man as a machine which took in oxygen and gave out carbonic acid during all its existence—a true description, but not a definition, for a common steam-engine does so also. The learned Dr. Mayow,

a physician of Bath, nearly two hundred years ago, had much the same view; for he contended (see *De Motu Musculari*, 1681) that muscular motion is dependent on two things—the conveyance of combustible fuel, which he believed to be fat, to the muscles by means of blood, and the access of vital air, or, as we now term it, oxygen, to that fuel by the agency of respiration. A steam-engine does consume its fuel by means of oxygen, and the chemical affinity between them passes into heat, which in its turn is converted into mechanical work. An animal body does the same thing, taking in fuel in the form of food, absorbing oxygen which has been inhaled into the lungs, and by the union of the two producing both heat to warm the body and mechanical work as manifested by muscular action. The steam-engine throws out carbonic acid and water by its chimney, and leaves the unconsumed part of the fuel as ashes. The animal throws out also carbonic acid and water by the lungs, and leaves the unconsumed part of its food as effete matter. So far the parallelism is complete. The steam-engine slowly wastes itself by the wear and tear to which it is subject, and in the course of a long term of years becomes unfit for use. The animal machine in a human body wastes so rapidly, in spite of the old tradition that the body of a man changes every seven years, that it probably becomes completely transformed in eight or nine weeks. Every part of the body is incessantly changing by death, and the new matter is built into the same form as the dead atoms which are absorbed and removed. The experience of the Morgue in Paris, shows that a body, after death, decomposes completely in twelve weeks. A living body, by the death of its individual parts, changes still more rapidly. The great rapidity of this waste has led some chemists to the belief that the animal body differs from a machine by using its own substance in the production of force; while others see in this excess of waste only the natural consequence of its substance being more liable to wear and tear than that of an ordinary machine. In the latter view, muscular effort is supposed to be effected, as motion is in a steam-engine, by fuel burned externally to the machine thus set in motion. These different views we proceed to examine.

In the first place, we take the theory of the venerable Dr. Mayow, whose opinions, dormant for two hundred years, have been lately brought into active life by Mayer, Donders, Frankland, Fick, and Wislicenus. In their latest aspect they are thus formulated by Professor Frankland:—

'1. The muscle is a machine for the conversion of potential energy into mechanical force.

'2. The mechanical force of the muscles is derived chiefly, if not

entirely, from the oxidation of matters contained in the blood, and not from the oxidation of the muscles themselves.

'3. In man, the chief materials used for the production of muscular power are non-nitrogenous; but nitrogenous matters can also be employed for the same purpose, and hence the greatly increased evolution of nitrogen under the influence of a flesh diet, even with no greater muscular exertion.

'4. Like every other part of the body, the muscles are constantly being renewed; but this renewal is not perceptibly more rapid during great muscular activity than during comparative quiescence.

'5. After the supply of sufficient albuminized matters in the food of man to provide for the necessary renewal of the tissues, the best materials for the production both of internal and external work are non-nitrogenous matters, such as oil, fat, sugar, starch, gum, etc.

'6. The non-nitrogenous matters of food which find their way into the blood yield up all this potential energy as actual energy; the nitrogenous matters, on the other hand, leave the body with a portion (one-seventh) of their potential energy unexpended.

'7. The transformation of potential energy into muscular power is necessarily accompanied by the production of heat within the body, even when the muscular power is exerted externally. This is doubtless the chief, and probably the only, source of animal heat.'—Pp. 24, 25.

These views are clearly put, and we might proceed at once to examine them, could we take for granted that all our readers were familiar with the main facts connected with the nutrition of animals. We cannot assume this, however, and therefore pause to make some necessary explanations. In previous articles,[1] the question of energy, in its relation to the various forces, has been so fully discussed, that we are justified in supposing that this relationship is understood. Potential energy may long lie dormant, and be converted into actual energy under favourable conditions. By converting the potential energy of muscles into actual energy, a man may draw the string of a cross-bow over the catch. As soon as the string rests on the catch, the energy is again stored up potentially in the bent bow. For a dozen years, or for a century, it may lie dormant in the cross-bow until some one touches the trigger; then the bolt is projected not by the force of the man who touched the trigger, but by the energy of the first man's muscles, which for so many years lay dormant in the bent bow. This sort of potential energy is stored up in food ready to be converted into actual energy under favourable circumstances. The sun shines upon plants, and its energy is absorbed by them during the production of vegetable substances fit for food. The solar force

[1] *North British Review*, Nos. LXXIX. and LXXX.

is, in fact, stored up in the plant, just as it was in the bent bow, and is ready to be brought out as actual power under favourable conditions. Dr. Odling puts this very clearly:—

'The vegetable organism is a machine in which the sun's energy is absorbed in the pulling apart of carbon and hydrogen from oxygen. The light and heat force emanating from the sun is rendered latent in the separated oxygen and hydro-carbon, just as human muscular force is rendered latent in the stretched cross-bow. When the separated hydro-carbon, in the form of some vegetable product, is recombined with the evolved oxygen, as in burning coal or wood upon the fire, or in consuming bread and oil and wine in the animal frame, the heat liberated in both instances is nothing more than the heat of the sun which had been stored up in carbo-hydrate and oxygen respectively. Conversely, the animal frame is a machine in which the sun's energy is set free by the recombination of that oxygen and carbo-hydrates, in the pulling apart of which it had been absorbed or rendered latent. The plant may be regarded as a miser or hoarder up; the animal, on the other hand, as a spendthrift or dissipator of the sun's force; but just as the miser is not a producer, or the spendthrift a destroyer of gold, so neither is the vegetable a producer, nor the animal a destroyer, of force. All modern philosophy combines to prove that force, like matter, is indestructible. It may be accumulated, but not created; be dissipated, but not destroyed.'—P. 76.

All alimentary substances may be divided into two great classes. The first class contains albumen, fibrin, casein, and their modifications, and are found equally in plants and in animals. These substances are distinguished by containing about fifteen per cent. of nitrogen, or just the same amount as dried flesh and blood, from the composition of which they do not materially differ. Hence Liebig has called them 'the plastic elements of nutrition;' the name has been shortened in this country into the more convenient term of 'flesh-formers.' According as these are more or less present in food, so is that food, if other nutritive conditions be not wanting, more fitted for building up the fabric of the body. Lean meat consists almost wholly of these flesh-formers, among which fibrin is predominant. The white of an egg offers them in the form of albumen, as the curd of cheese does in that of casein. But they are not confined to substances of animal origin, for the fibrin abounding in beef is largely found in wheat flour; the albumen of the egg may be extracted from cabbages; and the casein of milk is present in still larger quantity in beans and peas. All of them are originally derived from plants, for animals seek them out from the vegetable food which they consume, and merely deposit them upon their bodies. Nor do the carnivora form an exception to this law of nutrition, as

they feed on herbivora, which yield to them the materials for their flesh. The process of animal nutrition, so far as building up the body is concerned, is remarkable in its simplicity. Plants, having no high functions of volition to perform, become the laboratory of animal life, and prepare the materials of flesh and blood. Animals merely extract these, and give to them a place and form in their organism. The second great class of alimentary bodies consists of starch, sugar, gum, and fat, which contain no nitrogen, and therefore cannot build up animal organs having fifteen per cent. of that element. Their main function, according to Liebig, is to support animal heat, which, in the warm-blooded animals, is always considerably above that of the surrounding atmosphere. These substances burn readily, and produce a large amount of heat in their combustion. The gaseous products of their union with oxygen are carbonic acid and water, precisely the same bodies which escape from the human lungs. Combustion within the body is attended with the evolution of as much heat as when it takes place actively outside the body. The fact that there is flame in one case, and not in the other, is the mere accident of the rapidity of combustion. When iron rusts in air, it gives out just as much heat as when it burns with bright scintillations in a smith's forge, but the evolution of the heat is spread over a longer time. So when sugar or starch burns within the body, the amount of heat developed is the same as if they were consumed in an open fire; the only difference is, that the heat, being produced slowly in the former case, is absorbed by the blood and tissues of the animal, so as to heat them to a temperature of about 99 degrees Fahrenheit. This alimentary fuel enables the body of man to retain a uniform temperature under the most varying conditions of climate, for the appetite regulates the amount required to sustain the animal heat. Modern physiology is not so restrictive as Liebig was in his first announcement of this division of alimentary substances into flesh-formers and heat-producers; for while it is admitted that albuminous bodies have for their special function the formation of the organism, it is now certain that they can also act in the maintenance of animal heat. The second class, or the non-nitrogenous bodies, cannot perform this double office. They may, and no doubt do, act chiefly as 'heat-givers,' but they never can play the part of 'flesh-formers.'

This brings us back to our main subject; for while chemists are agreed upon the view that starch, sugar, and fat cannot form the organs of the body, they are in conflict as to their power of producing muscular force. One section of chemists, headed by Liebig, contend that the main function of non-nitrogenous food

is the production of animal heat and not of muscular force, while the other section believe that muscular power is their primary function, and animal heat the secondary effect. Both sections of chemists rely upon numerical results in support of their views, and we proceed to describe the manner in which these are obtained. When a man is at rest, he expires a certain quantity of carbonic acid; when at work, a much larger quantity. Thus a labouring man, during one hour of rest, exhales 130 grains of carbon in the form of carbonic acid, and during one hour's work, 530 grains of carbon. This excess of carbon burned in the body during work is viewed by many chemists as a proof that starch, sugar, and fat—the non-nitrogenous fuel—is consumed in the muscular force which enables the labourer to do the work. At all events, three-fourths of the increase must be due to such bodies. But while gaseous carbonic acid escapes from the lungs, a solid form of carbonic acid, containing nitrogen, or amido-carbonic acid, passes away in solution *per vesicam*, having been secreted by the kidneys. It is well known as *urea*, and is the representative of wasted muscles when no food has been taken, and of these, *plus* any excess of albuminous food beyond that required for the supply of waste, when too much aliment is introduced to the body. Besides this urea, which is the chief constituent of the ural secretions in man, small quantities of other nitrogenous ingredients are found, but for our present purpose are unimportant. Suppose that a labourer lives without gluttony, it is only necessary to ascertain how much urea has passed out *per vesicam* in twenty-four hours, then to multiply this amount by three, and we obtain the quantity of dry flesh which has been wasted during the same time by the wear and tear of the body. It is agreed that ordinary men, in good health, evacuate 520 grains of urea in twenty-four hours, while they emit the equivalent of 65 grains by other secretions; hence we ought to find, multiplying these numbers by three, that they should have 1755 grains of albuminous substances in their daily food. The experience of mankind does in fact show that they consume four ounces, or 1750 grains daily, of dry albumen, so that theory and experience in this respect closely agree. A really hard-worked labourer passes between 700 and 800 grains of urea daily, and consumes $5\frac{1}{2}$ ounces of dry albuminous food. As it is possible, then, by means of the excretions, to ascertain the extent of muscular waste, it becomes a mere matter of calculation to determine whether the amount of potential energy resident in the wasted muscles suffices to account for the work performed, or whether it is necessary to supplement this by the combustion of the non-nitrogenous portions of food. The potential energy in flesh resides in the

chemical affinity which it possesses for the oxygen dissolved in arterial blood. The oxidation resulting in the display of energy has been calculated by Playfair to produce as much heat as is represented by 4460 calorific units. In other words, one gramme of flesh in oxidizing could heat 4460 grammes of water one degree of the centigrade thermometer.[1] A year after this estimate, made upon theoretical considerations, Frankland experimentally determined the calorific value of beef muscle, and found it to be 4368 units; and as the experiments differ about 100 units from each other, we may safely assume Playfair's theoretical estimate and Frankland's experimental one to be identical, and take 4400 as in round numbers the calorific value for one gramme of flesh. The beautiful researches of Joule have taught us how to express a certain amount of heat by its representative of mechanical work. His experiments show that if we multiply the above number by 425, the 'mechanical equivalent' of heat is obtained; or the product signifies the number of grammes weight which could be raised to the height of one metre by the potential energy of the gramme of muscle. The figures thus obtained being too large to deal with conveniently, it is usual to refer to kilogrammes (1000 grammes), and to indicate the mechanical work of so many kilogrammes raised to the height of a metre. Calculated in this way, one gramme of dry flesh or albumen ($15\frac{43}{100}$ grains English) has potential energy enough to raise 1870 kilogrammes to the height of one metre. As the ordinary diet of a man is four ounces, or above 113 grammes, he ought to have in the transformed muscles of his body potential energy enough to raise 211,310 kilogrammes to the height of a metre. The actual external work of such a man is represented by a daily march of seven miles, which is the common soldier's exercise when in barracks, and this represents only 38,000 metre kilogrammes of work. Deducting from the potential energy 60,000 metre kilogrammes for the internal work of the body, such as the action of the heart, lungs, and intestines, all of which exercise mechanical force measurable in amount, we have still, according to Playfair, upwards of 150,000 metre kilogrammes of energy to do 38,000 of actual work. A *prima facie* case is thus made out for Liebig's view that muscular waste may be the source of work in animals.

His opponents, however, proceed to test it by inducing excessive work, and ascertaining whether that is attended by a

[1] We use French weights and measures, in deference to the growing feeling that the metric system should be followed by this country in all subjects relating to science. A kilogramme equals 2·2 lbs. English, and a metre 1·09 yard, or a little more than 39 inches.

corresponding excessive waste in the muscular system as displayed by a large increase of urea in the secretions. With this view, two philosophers of Zurich, Fick and Wislicenus, ascended the Faulhorn, a mountain which every one knows rises above the lake of Brienz to a height of 2000 metres. For thirty-one hours previous to the ascent, they fed themselves on starch and fat, the chief non-nitrogenous constituents of food, obviously for the purpose of relying on the already formed muscles in the body to accomplish the ascent, if the power resided in them. During the night previous to the ascent, they determined the amount of urea secreted, then that eliminated during climbing, ascertaining also the quantity passed in the six hours succeeding the work, and finally the amount secreted during the night after they had partaken of a hearty dinner, from which meat was no longer excluded. The experiment was in fact of remarkable interest, and seemed to give all the necessary data for the determination of the question. The weight of their bodies and accoutrements having been determined before starting, and the height of the mountain being known, the number of metre kilogrammes of work performed by them in the ascent could be estimated. Was this work represented in the urea formed during the ascent and for six hours after it? The amount of urea secreted during the ascent and for six hours after it showed that thirty-seven grammes of dry muscle had been wasted, and these could have developed seventy thousand metre kilogrammes of mechanical force. But in raising the body to the top of the mountain, and in supporting the action of the heart and respiratory organs during the ascent, the pedestrians had actually expended nearly one hundred and sixty thousand metre kilogrammes of force, or more than double the amount which could have been afforded by the transformation of the muscles. This assumes that all the potential energy resident in the muscles could be converted into useful work. Now, with all the improvements in the steam-engine, only one-tenth of the power evolved from the fuel while burning is transformed into mechanical work. Haidenhaim, however, has shown that a muscle during work may convert as much as one-half of its energy into useful work, and if we take this as the utmost limit of economy of the human machine, we must admit, with Fick and Wislicenus, that not one-fourth of their labour in ascending the Faulhorn could be attributed to the muscles expended in the effort. Their conclusion, therefore, appears justified that the non-nitrogenous constituents of food, the starch and sugar upon which they subsisted, must have helped them to accomplish the work, or, as they contend, have been the whole source of the power. These experiments have been

taken by Frankland and others without cavil, and are assumed to be quite conclusive. To our mind they are not so, and contain within them grave errors. The chief objection to their conclusiveness is, that the period of production of urea within the body is not the period of its elimination from it. Dr. E. Smith, in his experiments on prisoners on the treadwheel, and on himself, in the daily avocations of his profession, has shown that irregularities in labour and diet, and even changes in the barometer and thermometer, retarded the secretion of urea, so that the quantity produced in one day may not pass away till the second or even third day. Precisely these conditions were present on the Faulhorn, for at the summit there was a low condition both of atmospheric pressure and temperature, the very conditions which had previously been pointed out as powerfully retarding the elimination of urea. The philosophic mountaineers ascended under a peculiarly unusual diet; their starch cakes, fried in fat, must have tested their digestive powers in no common degree. Under normal conditions of diet, the amount of nitrogen in the solid excretions is only about one-twelfth that in the liquid; but if there are digestive difficulties to overcome, as when a dog is fed on starch and fat alone instead of flesh, then the amount of nitrogen in the solid excretions increases, according to Bischof and Voit, to an amazing extent, generally exceeding the amount in the liquid excretions. The reason for this augmentation is, that the solid excrements of an animal chiefly consist of the exhausted ferments used up by the digestive fluids in overcoming difficulties to assimilation. Now Fick and Wislicenus have overlooked this circumstance altogether, and do not tell how much nitrogen was present in the alvine secretions. In the absence of such information, their experiments lose much of their value. Even on their own theory, that the animal body is a machine like a steam-engine, supplied with non-nitrogenous fuel, and exhibiting a waste displayed in the urea as a consequence of mere tear and wear, we should have expected that the urea, as the representative of the friction of the machine, should have been increased proportionately to the heavy work of the ascent, although the actual increase might have no numerical relation to the origin of muscular force. The following numbers are those given:—

Urea for twelve hours before ascent,	46	grammes.
Urea for six hours of ascent,	22	
Urea for six hours after ascent,	16	38 „
Urea for twelve hours of rest after dining,	32	„

The experiments, in fact, prove a great deal too much, for

while they indicate that the urea is not secreted in proportion to the work performed, they show likewise that when the machine is exposed to heavy tear and wear by excessive work, the waste by friction is considerably less than it was for the twelve hours before the ascent, when the pedestrians slept comfortably in their beds on the shore of the lake of Brienz. This fact ought to have made them suspicious either that all the waste matter had not been eliminated during the short term of their experiment, or that it had escaped in other directions than *per vesicam*.

For the reasons stated by us, we do not consider that the celebrated ascent of the Faulhorn has settled the important question of the origin of muscular force in man. Nevertheless, we are not inclined to disbelieve the view that occasionally, and under peculiar circumstances, the corporeal machine may be fed with non-nitrogenous fuel. Vicarious action is common in all parts of the body. The skin assumes the functions of the kidneys when their action is retarded; the latter, and even the intestines, remove those portions of water from the system that impaired lungs are unable to carry off as vapour. Both the skin and the lower intestine can, under exigency, perform the function of the upper intestine in absorbing food, as instanced in the nutritive injections and soup-baths which supported a former King of Prussia in his last illness. The stomach occasionally does some of the duties of a defective uterus. When the blood refuses to oxidize non-nitrogenous fuel so as to convert it into carbonic acid exhaled by the lungs, the skin comes to its aid, and removes it in the form of marsh gas. In fact, all through the body, means are provided for effecting, under difficulties, by extraordinary means, the ordinary actions intrusted to certain organs. So that it is not surprising to find a compensating action as regards muscular energy. Nitrogenous fuel might be the ordinary and proper material for muscular action; yet, as a temporary substitute, non-nitrogenous fuel might be applied, not, however, without a certain deterioration of the machine. It is therefore possible that, if all the necessary corrections were made to the experiments of the Zurich physiologists, there would still be found a large amount of actual work which was performed by the use of starch and fat as fuel, in substitution of that which is commonly employed. In the case of 'underfed and overworked prisoners,' carrying out their punishment on the treadmill, Dr. E. Smith found that more work was performed than could be attributed to wasted muscle, but the men were running down in strength, and could only be put upon their labour every second or third day. This modified view of the subject is not admitted by Frankland and his supporters. They

contend that not in man alone, but in lower animals, there is evidence that the non-nitrogenous food—the starch, sugar, and fat—is the source of muscular work. Bees are brought in support of this view, for honey consists chiefly of sugar, and contains but a small amount of nitrogen as an albuminous mixture. Yet bees subsist upon honey only during the winter, precisely at that period of the year when they have scarcely any work to perform. During summer, when they work hard to form this winter store, their food is not exclusively saccharine, for the pollen of flowers, which, in the form of *bee bread*, forms the chief food of the larvæ, is also consumed by the working bees, and is in itself highly nitrogenous. The mouth of the butterfly is only adapted for the suction of honey from flowers, and yet it uses much muscular exertion in its lengthy flights; but we are certainly sceptical as to Verloren's statement that this honey is free from nitrogen, for the excrements of butterflies are rich in that element, and can only have been derived from the food taken. Insects are cited by the advocates of the view now under consideration as offering powerful arguments in favour of their theory, but they may likewise be brought in strong opposition to it. For the theory supposes that the non-nitrogenous fuel is brought in the blood to the muscles, where it is used for the production of mechanical effects; but as insects have no true blood, it is difficult to see how they support this view.

We have endeavoured to state fairly the views of one set of chemical physiologists, though we have not hesitated to express our dissent from them in some cases; and we now proceed to discuss the opinions of their opponents.

There seems to be no doubt that the oxidation of the substance of a muscle can produce muscular force. If a living bundle of muscular fibre, white and free from blood, be excited electrically, it shows muscular irritability by contracting, and, if attached to weights, will raise them, thus doing actual work. The amount of electricity required to produce this irritability is so small, that it has no relation whatever to the work performed. A muscle is only contractile in the presence of oxygen gas, so that its work is obviously the result of oxidation. But as muscular fibre contains fat, a non-nitrogenous substance, as well as nitrogenous fibrin, its contractility might be supposed to be due to the former body and not to the latter. Helmholtz has discussed this question by examining the changes of a muscle before and after contraction, and he found that, while the substance of the muscle wasted by oxidation, the fat remained unaffected. Electric excitement is not always necessary for its manifestation. We have seen

the heart of a shark removed from the animal and drained of blood exhibit its regular valvular action for a quarter of an hour. The head of the same fish, cut off from the body, can bite fiercely with its jaws for some minutes. This retention of muscular power is well marked in a curious fish of the White Nile, the *Tetrodon Physa*, regarding which Baker states that 'many minutes after the head had been severed from the body the jaws nipped with fury anything that was inserted in the mouth, nipping through thin twigs and thick straws like a pair of shears.' The heart of the turtle continues its action for a long period after being extracted from the newly-killed animal. The irritability of a muscle removed from the body, cut off from blood, and working under electric excitement or spontaneously, seems without question to derive its power from the oxidation of its own material. And if this be true of detached muscular fibre without the body, it is probably also true of muscle *in situ* within the body. There is, in fact, no doubt that nitrogenous substances free from fat can support muscular force perfectly well, the only question being whether they act as fuel external to the muscle, or are first built in as part of its structure before being used to produce muscular power. The Jews, who have retained the characteristics of their race, as well as their corporeal health and mental activity, for a long series of years, carefully remove fat from their food before eating it, in obedience to the Levitical law: 'This shall be a perpetual statute for your generations, throughout all your dwellings, that ye eat neither fat nor blood.' As the chemist may, however, contend that a mere mechanical separation does not take away all the fat concealed within the muscular fibres, we proceed to quote experiments to which this objection does not apply. Two German physiologists, Bischof and Voit, carefully freed flesh from all its fat, by chemical means, and fed a dog upon it for a month; this dog kept perfect health, and worked a treadmill doing 150,000 metre kilogrammes daily. Savory fed rats on a similar diet, and found that they also could live well on nitrogenous matter free from fat, starch, and sugar, and carry on their usual muscular efforts. The purely nitrogenous diet had thus a double power, for while it kept the muscles and other organs of the body in repair and fit for their usual functions, it at the same time supported the animal heat. Non-nitrogenous diet cannot effect this double purpose, for, though well fitted to support the internal heat, it cannot repair wasted tissues, and therefore is not fitted to support life *per se*. Bischof fed a dog upon a mixed diet of flesh and fat, increasing the proportion of the latter gradually, and found that, while the fat was laid on to the body, the nitrogenous portion of the food became oxidized in preference, and appeared as urea

in the excretions, showing that it is peculiarly susceptible to that oxidation which is the origin of all force in the body, whether it manifests itself as heat, electricity, or muscular power.

If our readers have followed these observations, they will find the question much narrowed. There is now a common agreement among all chemists and physiologists:—

1. That purely nitrogenous diet can support living tissues and produce muscular force.

2. That non-nitrogenous diet *per se* cannot support living tissues, or permanently sustain muscular force.

The question is now limited to this: In the mixed diet of mankind is there sufficient nitrogenous matter to account for muscular force under ordinary circumstances? Frankland denies this in the lecture which we have quoted, and Playfair affirms it. The latter chemist appeals to the ordinary experience of mankind, and refuses to allow abnormal experiments, such as those of Fick and Wislicenus, to be considered as bearing on the question; for while he does not deny that muscular force may be exceptionally produced by the combustion of non-nitrogenous fuel, he at the same time contends that this source cannot be continuously relied upon without producing a rapid and fatal deterioration of the system. Before proceeding to numerical data, let us take the argument of common experience in its general aspect. It is well put by Donders, the Dutch professor, whose work we have quoted, and whose evidence we may readily take, as he is an unwilling witness for this side of the controversy, his views being nearly the same as those of Frankland:—

'Now, is it a matter of indifference what food animals use? Experience has taught us the contrary. Highly bred horses need highly nitrogenous food. Their excellent qualities are developed under the influence of such aliments, combined with exercise and care for perfect transpiration. Thus in these horses the cubic centimetre of muscle has reached a higher labour value than in any other working animal. In order not to degenerate, they now require such food, and require it permanently. The Arab never lets his horse eat grass and straw to satiety. His chief food is barley, and in the wilderness he gets milk, and if great effort be required, even camel's flesh. The horses which, in the Sahara, are used for hunting ostriches, live nearly exclusively on camel's milk and dried beans. Of our horses, too, it is well known that in order to do heavy work they require more than grass and hay. Oats are necessary to give strength and activity; and while running the food preferred for the horses is bread. I have consulted many innkeepers and coachmen upon the feeding of horses. Their verdict has been unanimously as follows:—"The oats must be in them. If they come from the farmer they are round and plump, for the farmers

feed well. But such horses are not fit for our use. They sweat directly, and cannot bear a hard run. The oats must be in them." . . . The conclusion is this, that the best and noblest racers are developed and maintained upon a diet abounding in albumen, and that each horse is better adapted for work when fed upon oats, bread, and beans, than upon hay and grass. The labour of oxen is far behind that of horses, but these animals are still used in the Netherlands. In general they live on grass and hay; but if they have hard work to perform they get, with a more liberal allowance of their ordinary food, the so-called "oxen bread," baked principally of bean meal, and consequently rich in albuminous matter. Without this bread they fail in their work.

'What we read of the rein-deer is important. Brücke tells us that in one day it not unfrequently runs for nineteen hours, performing 150 English miles, and yoked to a sledge of 240 pounds. This work is equal to that of four Esquimaux dogs. Now, in the Imperial Menagerie at Schönbrunn, a rein-deer gets as his daily food about five pounds of Iceland moss. But Brücke tells us that the food of the rein-deer is not always so sparing, that in summer he seeks the mountain pastures, and in winter lives on the parasitic plants of the forests, and for want of other nitrogenous food catches and devours field-mice. . . . On the whole, we come to the conclusion that animals, to perform work, *constantly* use not only a larger quantity of food, and therefore proportionately more albuminous matters, but that they further require for their labour a more highly albuminous diet.'—Donders, pp. 33, *et seq.*

The facts which Donders has so well brought forward in the quotation just given with respect to animals, might readily be supported by similar facts in relation to man. Even in the same country we see races with national characteristics very much dependent on the quality of their food. In Hindostan the rice-eaters of the plains are weak and effeminate in comparison with the men who feed on the leguminous plants of the Upper Provinces. The Ghoorkas, who came to our aid when we were so sorely beset in the late mutinies, are flesh-eaters like ourselves. In Africa the distinction between poor and rich feeders of nitrogenous diet is still more marked. Whenever a strong and energetic tribe is described by travellers, we find that they tend cattle carefully, and in some instances cultivate cereals,—for both of these bucolic arts yield a more steady amount of flesh for men than the chance supplies of the hunt, or than the roots, field-mice, snakes, and white ants of the more wretched tribes. The finely-built savages of the White Nile not only milk their cows, but *bleed* them, in order to get nitrogenous food. 'They bleed their cattle periodically, and boil the blood for food. Driving a lance into a vein in the neck, they bleed the animal copiously,

which operation is repeated about once a month' (Baker, vol. i. p. 81). In the use of blood they are like the Eskimos and Samoyeds who, Richardson tells us, drink a good deal of fresh blood 'when they require to use much exertion, as in hunting,' although they derive it from freshly killed animals. In South America the food is often as indifferent as the character of the races which inhabit many parts of it; but when actual labour is performed, as it is by the Guacho who sits all day in his saddle, then Darwin tells us that lean meat is consumed in surprising quantity. The miners in the Andes, who have to work like horses, are fed very much in the same manner, for it is found necessary to supply them liberally with beans, a diet abounding in casein. The Egyptian labourers on the railways and canals were found to be nearly equal to English navvies after the contractors supplied them liberally with albuminous food, but they cumbered the ground with their dead when their enforced labour was extracted from the diet which had sufficed for their usual sluggish work. As our space does not permit us to enter largely into this part of the subject, we content ourselves with another quotation from Donders:—

'Men who actually perform work also use albumen, and in general consume more in proportion to the severity of the labour. The quantity of food is great, surprisingly great, we will say, if we visit the tables of the country people, who do heavy work, and proportionate thereto is the quantity of albumen ingested. They get more albuminous matter than one suspects, for, besides potatoes, they use different kinds of flour and bread in great quantity, and every evening trencherfuls of buttermilk, which contains all the casein of milk; and in the middle of the day pork and bacon. For soldiers in garrison Mulder calculated 100 grammes of albuminous matter daily, and for sailors still more. In a yard visited by me, strong men were employed nearly all day in sawing planks. They got high wages, and required it, for "without a pound of meat daily and a good jug of beer, one could never hold out at that work." Thus too the guide, who daily ascends mountains and helps the traveller to carry his valise, must be well fed, and especially requires animal food.[1] Of the English labourer,

[1] Our experience of mountain climbers is the same as that of Donders. We have seen some of the most celebrated members of the Alpine Club, and some of the most enduring of the Alpine guides, laying in the fuel for the ascent of their bodily machines, and have marvelled at the wonderful amount of animal food which they consumed. And yet Frankland, along with Fick and Wislicenus, quotes an observation of Dr. Piccard, 'that chamois-hunters are accustomed, when starting on long and fatiguing expeditions, to take with them as provisions *nothing* but bacon-fat and sugar, because they say these substances are more nourishing than meat.' As we write this, we happened to meet the American General who acted as Quartermaster-general in Sherman's famous march. We asked him, 'As you had to depend upon

who daily gets meat and drinks strong beer, we know that he is strong and active, and that the Irish people, who live almost exclusively on potatoes, are called lazy and slothful. I have often remarked that slothfulness is rather a morbid symptom than a vice.'

We would supplement this general summary of facts by the experience of men training for athletic sports, more appreciated in this country than in that of the Dutch professor. If fat and starch be the main motive power of the muscles, we would expect that these should be given in liberal proportion during a course of training for muscular activity. The very reverse is the case, for the diet is made as much as possible to exclude farinaceous and fatty food, and to depend upon the assimilation of lean meat. So much is fat avoided, that part of the training for the Oxford and Cambridge boats' crews consists in making the men run a mile daily, or walk five miles briskly, in order to get fat out of their muscles. On the day of the race, it is usual to give only a light breakfast of lean mutton-chops, from which fat is carefully cut off, and a limited amount of toast. It is extraordinary, if fat and starch are the conditions for muscular activity, that our athletes should not only never have found out their merits, but have taken such a singular aversion to them. In the actual rowing-match or prize-fight, however, when the muscles have been well developed, we may hope to find theory triumphant, and that now non-nitrogenous food is supplied as fuel to the animal machine so sorely tried. Yet even then we do not find the seconders, or bottle-holders, pouring arrowroot or oil down the throats of the men at their periods of rest, though they encourage them to rely wholly on their existing muscular fibre, and merely give lemons to suck, or other means of assuaging thirst. The systems of training differ, sometimes having absurd requirements, but all of them—the Oxford, Cambridge, Stonehenge's, Clasper's, Westhall's systems—are of one accord as to the necessity of putting a strict limit to the amount of fatty and farinaceous articles of diet. As athletes, however, are not philosophers, their experience may be inferior to the theories of those chemists who differ from it. Yet, as these theories are still under discussion, we confess a leaning to the long-gathered experience of the world.

The treatise of Playfair, which we have quoted, examines the question by the results of long-established experience. All nations have an interest in keeping their soldiers and sailors in good health and fit for work. The public dietaries, which have

bacon largely in this fatiguing march, did you like to supply it to the soldiers fat or lean?' His reply was, 'As lean as we could possibly get it, for unless we got lots of lean meat into them they broke down.'

been adopted as the result of long experience, are singularly accordant in the amount of nitrogenous matter furnished to the soldier; while they are, at the same time, variable in the quantities of non-nitrogenous food. As the latter may consist of fat, starch, or sugar, it is usual to reduce it to a common standard for comparison, the whole being calculated with its equivalent of starch. The following numbers indicate the daily dietetic supply of nitrogenous and non-nitrogenous aliment in ounces, and tenths of ounces, to soldiers of various nations while they are on the peace establishment:—

	Nitrogenous Aliment.	Non-nitrogenous Aliment.
English soldiers, ...	4·2	22·6
French ,, ...	4·4	22·5
Prussian ,, ...	4·0	22·1
Austrian ,, ...	4·2	21·0

These numbers are singularly accordant, although the articles of food supplied to give the chemical nutritive ingredients are very diverse. As an average, $4\frac{2}{10}$ ounces of dry albuminous food suffice to keep an ordinary man in good health. We have already shown that the work of a soldier during peace does not exceed 38,000 metre kilogrammes, while the potential energy of the nitrogenous matter in his food is upwards of 200,000. We quite agree with Donders that the work of a labourer, when actually measured, does not often exceed that which any man fed like a soldier in garrison might readily perform:—

'People are deceived as to the amount of work performed. Most callings require rather an accurate use than great tension of the muscles. In fact, the work performed by the human hand is, when measured by the accurate standard of kilogrammeters, in general very little. If the manufacturer of fabrics was called to perform hard work, to carry heavy loads, or to overcome great resistance, it would be soon seen how little he is fitted for the purpose. Even his very appearance betrays it. On slender food and under unfavourable circumstances, his physical condition is lowered to a degree at which it can now be maintained by slender diet.'—P. 44.

Although a large number of the labouring classes perform their daily routine of labour with but a small expenditure of actual energy, still there are exceptional vocations in which much real work is accomplished. The 'navvies' on our railways belong to the class of actual workers, and are, at the same time, heavy feeders. We prefer to take actual weights when speaking of dietaries, for mistakes frequently occur in such statements as those of Frankland, that the diet of navigators consists 'of thick slices of bread surmounted with massive blocks of bacon, in which mere streaks of lean are visible.' Gasparin discussed the nutritive value of the food daily taken

by English navvies while constructing the Rouen railway, and found it to contain $6\frac{8}{10}$ ounces of flesh-formers; and Letheby, describing that of the navvies who constructed the railway during the Crimean War, estimates it as affording $5\frac{7}{10}$ ounces, while Christison gives 8 ounces as the amount consumed by the labourer in reaping the harvest in Scotland. These numbers show that the active labourer takes considerably more albumen than an ordinary man not exposed to heavy work. England, when it sent its soldiers to labour in the trenches and fight in the field during the Crimean war, first began to feed them on a peace diet,[1] for this is the only nation which has not yet established a 'war diet' of a more generous nature than that used in garrisons. The result was the humiliation of our country. The labourers in the trenches, not having in their food sufficient energy to transform into work, succumbed under their fatigues and privations, and died by thousands. When the outcry became loud in England, then the War Office began to improve the diet, and raised the flesh-formers by about half an ounce daily, though the experience of all other countries shows that a soldier cannot go through active warfare without a daily supply of at least six ounces of dry albuminous matter in his food. Rather more than this quantity was given to Prussian soldiers in the recent Bohemian campaign, and we know the marches and fighting which they accomplished. The Austrians gave only about five ounces of flesh-formers daily, and even this amount was not uniformly afforded, owing to their wretched system of commissariat. We were in Germany before the end of the war, and had the opportunity of examining the muscular condition of several regiments of soldiers who had gone through the campaign, and arrived at the conclusion, that though the needle-gun may have given to the Prussians immediate superiority in the field, their excellent commissariat was a still more powerful cause of victory. A soldier in a campaign is worked hardly when he has to march, without rest, fourteen miles daily laden with sixty pounds weight of accoutrements. This is equivalent to a labour of raising 776 thousand pounds to the height of one foot, or, in round numbers, about 107 thousand metre kilogrammes. To this must be added 60,000 for the internal work of the body, so that at the outside, 167,000 metre kilogrammes would represent the average daily work of a campaign. In the six ounces of flesh-formers supplied during the Prussian war, the soldier, after deducting the amount which is expended in digestion, finds potential energy enough to do 290,000 metre kilogrammes, hav-

[1] Our Commissariat has deteriorated in England, for Froude tells us that the hardy soldiers of Henry VIII. had a daily supply of 2 lbs. of meat, and 1 lb. of bread.

ing, as we have seen, but 167,000 to perform. On the interpretation of these numbers, we again find the chemists disagreeing. Frankland says that the body could not be expected to work so economically as to convert more than one-half of its potential energy into useful work, and that, therefore, 334,000 metre kilogrammes should have been provided instead of 290,000. Playfair, on the other hand, refuses to admit that nature is so extravagant in her expenditure of force. This idea of her wastefulness has arisen from our want of success in an economical application of force to steam-engines. But the body of an animal is a wonderful machine, and, admittedly, expends force with a surprising economy. To multiply one number by two, and then deny its accordance with another, which has not been thus arbitrarily increased, is not science, but the advocacy of a foregone conclusion. A campaign is, after all, but a doubtful test of the question, for, putting aside the frequent additions to rations got by foraging, it is rare to find the bodies of soldiers in prime condition after the conclusion of their severe labour. Neither is it easy to decide the question by the work performed, and the food consumed by peaceful labourers, for their intelligence is rarely of that order which gives assistance to the scientific inquirer without reservation or suspicion. In the tables given by Playfair, we find the flesh-formers consumed by really hard-worked labourers varying from five ounces to ten ounces, the latter high number being taken by prize-fighters during training.

It would, on the whole, be better if we had accurate data as to the habitual work and diet of animals, such as horses, because both their food and urinary secretions could be determined accurately. The recent Principal of the Veterinary College in Edinburgh, Professor Dick, states that 12 lbs. of hay and 5 lbs. of oats, form sufficient daily food for a horse doing no work, but considers that a working horse should have 14 lbs. hay, 12 lbs. oats, and 2 lbs. beans. The chemical value of the food is as follows:

Horse at rest, .	29·2 oz. flesh-formers.
Horse at work, .	56·2 „ „
Difference for work,	27·0 oz. flesh-formers.

The latter amount of albumen contains enough potential energy to raise nearly one and a half million of kilogrammes to the height of a metre, while the work of a horse is generally estimated as eight times greater than that of a man, or would be 850,000 metre kilos. The work which a horse can perform for a short period may be placed at a greater amount than this, but the whole day's labour certainly does not exceed it. We would

strongly recommend that experiments in this direction should be multiplied, as they are more likely to give definite results than in the case of human labour. Although we might quote the experiments of Lehmann, Hammond, Beigil, Speck, Franque, and Beneke, in favour of a largely increased secretion of urea, proportionally to increased work, against the experiments of Voit and the younger Draper, in which no large increase was obtained, yet we are of opinion that a sudden augmentation of labour beyond that to which the system is accustomed, is not necessarily attended by a simultaneous manifestation of urea. We believe that the muscular development accommodates itself to the average work required of the body, and that the muscular waste is in proportion to this development. If a man in this condition suddenly increases his labour, as he does by ascending a high mountain, there is no doubt a greater wear and tear of the body, though not in proportion to the work performed, for the system throws itself upon non-nitrogenous fuel for the accomplishment of the unusual work. Unless this were possible, it would be difficult to understand how men could perform unexpected labour without change of diet, and even, for a time, under privation. We admit this as a possibility, or even as a probability, without seeing in this fact the postulate that non-nitrogenous food is the best fitted for muscular work. Whenever a sustained large increase of labour is enforced on the system, we see, as a necessity for its accomplishment, that there must be a greater muscular development, with a steady augmentation of albuminous food and of its products of waste in the secretions. It is quite true, as E. Smith observes, that a sudden increase of work is not always attended by immediate augmentation of urea; but it is equally true that sustained labour, without corporeal deterioration, is invariably accompanied by a corresponding enlargement of the urinary secretions. We find, for example, that a soldier living healthily on 4 oz. of albumen, cannot carry on work in the trenches for any lengthened period, if restricted to this diet, although the amount of starch and sugar may be largely augmented. The cab-driver and factory operative remain healthy with a daily ejection of five hundred grains of urea, but the coal-heaver and blacksmith have from six to eight hundred grains, as the representatives of the waste arising from their larger muscular development. It is one thing to admit that non-nitrogenous food may, under certain conditions, have its potential energy converted into muscular force; but it is another thing to contend that this is the normal source of its development. We, on the contrary, believe that the albuminous materials, which alone contain within themselves the means to restore muscular waste, form not only the natural food of muscles but also the ordinary source of mus-

cular power when the body works regularly and without deterioration of its parts. We do not, however, coincide with Liebig in the opinion that all of this nitrogenous food must first be built into muscle before it is applied in the production of force, for the experiments of Lehmann in Germany, and of Lawes and Gilbert in this country, do not support this belief. And those of Bischof, to which we have previously referred, prove that such food is more readily oxidized than fat, and can be more speedily used as a force-producing fuel.

It may be well, before taking leave of our subject, to recapitulate its main features. Liebig and his supporters contend that albuminous bodies form the natural fuel for the muscular machine, which they consider is alternately wasted and repaired, as a consequence of its work; the contraction of the muscle being due to oxidation, the relaxation to repair of its wasted parts. To this Frankland and his supporters bring in opposition the fact observed by E. Smith and Voit, that suddenly increased muscular effort is not attended by augmented muscular waste. This is an important fact undoubtedly, but it is equally incomprehensible on Frankland's views as on those of Liebig. If the urea be the mere representative of the waste of the animal machine due to friction, why, when that friction is increased, does not the urea increase in proportion? What we do know is this, that the force manifested by the muscles must be the result of a transformation of a motion of molecules into a motion of mass. But we are entirely ignorant of any arrangements in the body by which *heat* can be transformed into mechanical work; nor does our acquaintance with the mode of working common machines give us the smallest clue to the unwinding of this problem. The only fact upon which Fick, Wislicenus, and Frankland repose their system is, at the least, as inexplicable upon it as it is upon that of Liebig. A theory is certainly defective when it fails to explain an important phenomenon; but it is not science to substitute it by a second theory which also entirely fails to include the very same phenomenon that for the present stands excluded from the first.

In our review of this important subject, we have seen that the questions involved in it are far from having received definite answers. The origin of muscular force is not only one of the most important, but at the same time one of the most difficult, problems in physiology, and many years must elapse before it receives a satisfactory solution. It may be, and probably is true, that amylaceous and saccharine bodies are capable of being used for the development of muscular force; but it may also be true that albuminous materials form the natural fuel for the working of the animal machine, as they certainly do for the

construction of the machine itself. The harmony of animal life requires mixed food, and the habits and characters of population must depend upon the manner in which this mixture is habitually achieved. When the inhabitants of a country like Ireland, Norway, Egypt, or Hindustan, neglect the due admixture of nitrogenous and non-nitrogenous aliments, by confining the diet too exclusively to such substances as potatoes or rice, in which the amylaceous bodies predominate, the result is seen in the excessive poverty of the masses and in the idle habits of the people—an idleness which is enforced by physical inability to perform a large amount of work on food of this low quality. The Irish peasant, who can earn only seven or eight shillings a week, when the potato is his chief source of sustenance, can readily, as a bricklayer or navvy, raise his wages to fifteen or twenty shillings, if his food be now adapted to a proper muscular development. Even admitting that the waste of his system is only that of an average man, and not that of a strong workman, it would be necessary for him to eat twelve pounds of potatoes to effect the requisite repairs. Should his stomach refuse to digest more than six pounds, he can only do half a day's work, and is worth only half a day's wage. With such a diet idleness is a physical necessity, not a moral delinquency, for work of an average amount is an impossibility. Now an increase in the quantity of albuminous material, through more nourishing food, places the imperfect labourer in the position of an able-bodied artisan. If, in a protracted campaign of the same number of Russian and English soldiers, equally trained and led, the English soldier is kept on his peace diet of four ounces albumen, and the Russian receives his war ration of six ounces, the chances are as six to four that the Russian will ultimately win; for any superiority, moral, hereditary, or national, of the English soldier will vanish in the fact that the physical machine of his body must run down without adequate repair. All this is independent of theory. The experience of mankind, as well as science, makes it quite certain that the animal body can only be repaired by albuminous materials, of which a certain quantity, proportionate to the work performed, must be presented. They may be the direct or indirect source of the labour performed, but they must unquestionably be present in food, and any deviation from the quantities required by the body to repair its waste will quickly show itself in the deterioration of the human frame; for nature pursues her own course, and must have her laws strictly obeyed, however imperfectly existing theories may interpret them to the world.

ART. III.—1. *The Present State of the Church of Ireland.* By RICHARD WOODWARD, Bishop of Cloyne. Dublin, 1787.

2. *The Church Establishment in Ireland, Past and Present. Illustrated exclusively by Protestant Authorities.* Dublin, 1863.

3. *A Charge addressed to the Clergy of Armagh and Clogher.* By MARCUS-GERVAIS, Archbishop of Armagh. Dublin, 1865.

4. *Substance of the Speech made by* EARL GREY *in the House of Lords, on Friday 18th March* 1866, *in moving for a Committee to consider the State of Ireland.* London, 1866.

5. *The Irish Church Establishment.* Speech of Sir JOHN GRAY, delivered in the House of Commons, 11th April 1866. Dublin, 1866.

6. *The Case of the Church Establishment in Ireland, considered in a Charge to the Clergy of Killaloe, etc.* By WILLIAM FITZGERALD, D.D., Bishop of Killaloe. Dublin, 1866.

7. *A Charge, etc.* By HAMILTON VERSCHOYLE, D.D., Bishop of Kilmore. Dublin, 1866.

8. *A Charge, etc.* By WILLIAM HIGGIN, D.D., Bishop of Derry and Raphoe. Dublin, 1866.

BETWEEN the Irish people and the Anglo-Irish Church a long war has been waged; a war which has lasted ever since the English invasion until the present hour. In that theatre of hostilities where a Christian Church can with perfect propriety strive for mastery, the Anglo-Irish Church has sustained discomfiture, for it has won no triumphs on that glorious battle-ground where the hearts of a nation form the trophy. The Irish people still defy the Church of their invaders, and reject the hierarchy into whose ranks in ancient times Irishmen were, by insulting Statutes, forbidden to enter. Indeed, it can scarcely be pretended that the Anglo-Irish Establishment ever felt the true spirit of a Church militant towards the mere Irish, nor was it devoted to the spiritual work of winning souls. As 'Church patronage was one of the most readily available' amongst 'the means of corruption' (to use the language of the Bishop of Killaloe), the bishops were mostly political tools chosen by the English Government for the purpose of extending its power. The true weapons of a Church—the saintly men living saint-like lives, the burning words spoken in a language 'understanded of the people,' the sacred offices sacredly administered,—these implements of evangelistic warfare were rarely employed for the benefit of Irishmen. But the Anglo-Irish Church was from the very first successful by means of less

worthy weapons, in a field less noble than that of missionary enterprise, and in the arena of political strife gained many victories over the Irish people. Its first triumph was over the independence of Ireland, which was bartered away for an ecclesiastical establishment. By English aid the Anglo-Irish Church was sustained for more than 300 years, during which, although no doctrinal differences existed, the hierarchy and the nation were to a considerable degree estranged from each other. And when the Anglo-Irish bishops, at the period of the English Reformation, attorned for their temporalities to Henry VIII. instead of the Pope—and thus unwittingly took a step which in subsequent years was employed as a means for justifying the introduction of a Reformed Episcopate and a second Church, which the Irish clergy and people rejected—then the Anglo-Irish Reformation Church, although that of the very small minority of the people, was enabled, by means of English arms and laws, to obtain triumphant possession of all the ancient national endowments for religion in Ireland which had not been confiscated into lay hands. In point of fact, the Reformed Church in Ireland had no beginning except in the Council Chamber of Elizabeth. It was born and cradled amid despotism and corruption. The Queen commanded her deputy, Sussex, to establish the Reformed religion by Act of Parliament, and Sussex abandoned the Mass, took up the new creed as if it were a new glove, packed a fictitious Parliament, and passed a batch of laws which were thrust, wherever and whenever the English Government had power, down the throats of the Irish. To give their Episcopate a somewhat better pedigree, Irish Church historians have fondly invented a legend, to the effect that the Roman Catholic prelates, who were in office at Queen Mary's death, were, upon Elizabeth's accession, converted by compulsory oaths of supremacy and penal Acts of Parliament to the Reformed faith. But there is no evidence that any of those bishops conformed, with the single exception of Hugh Curwin, the Archbishop of Dublin, who alone of the Irish bishops appears as the advocate of the Reformation, and the Queen's instrument for creating a Reformed hierarchy. Curwin and the Queen, however, had only power to interfere with the temporalities of the Irish sees, and that only in those parts of Ireland where the English Government was strong. The Pope and the Irish papal bishops had, and still have, exclusive power over the spiritualities, which neither sword nor persecution were able to destroy.

In spite, however, of the dubious morality of those early transactions, the present legal right of the Anglo-Irish Church to the ecclesiastical property of the nation is of course perfect,

and would be so even if that Church could not reckon a hundred members. That property consists chiefly of tithes, the compulsory payment of which was introduced into Ireland in 1172 by Henry II., in opposition to the feelings of the inhabitants,—the Celtic mind being, it is said, averse to all except voluntary payments for religion. Queen Elizabeth and her successors, by various legislative enactments, secured the Church revenues to the present possessors, whose legal and parliamentary title is indisputable. There is accordingly no necessity to determine, in relation to the question of tithes, whether the present Established Church or the Roman Catholic be the true successor of the pre-Reformation Anglo-Irish Church. The one can boast of legal, although somewhat irregular, bishops, of royal and parliamentary sanction, and of the possession of all the churches and of all the ecclesiastical power and property which the State could give it. The other Church can adduce papal bishops, the authority of the Irish chieftains, continuity of doctrine and complete spiritual jurisdiction over the great bulk of the inhabitants. To rights, however, which are merely legal, and have no foundation in eternal justice, Kings, Statutes, and Parliaments can give only present and temporary, not permanent and immutable force. And rights, which originated confessedly in a traitorous compact, which were enforced by despotic power, and have been preserved only by penal legislation, are, from their very nature, peculiarly liable to change. The legal rights of the Anglo-Irish Church to the ecclesiastical property of Ireland have, accordingly, been oftentimes altered and modified, and have even undergone, both anciently and recently, partial confiscations. The destruction of monasteries, and the secularization of their revenues, the discontinuance of 'book-money'—an oppressive exaction formerly[1] levied on Roman

[1] The Roman Catholic priests, down to a late period, were obliged to compound with the Protestant ministers for their fees. In a Roman Catholic Register-Book of Marriages (now before us) for a parish in the county Westmeath, there are frequent proofs of this practice. In this register, which begins in 1737 and ends in 1775, there appears a regular account between the parson and the priest. Such entries as the following are common:—'*N.B.*—He paid 3s. 9d. for y^e^ parson's fee.' 'I recieved Mr. Champheney's (the Vicar's) fees.' 'Cleared out with M'Geunis' (the Vicar's clerk). 'He swore by y^e^ book oath y^t^ he w^d^ pay Mr. M'Geunis.' Sometimes the clerk's wife was present, in lieu of her husband, at the Roman Catholic marriages, and then it is entered 'Mr. M'Geunis' wife came with them,' or she 'became security for y^e^ parson's fees.' The parson's clerk duly entered his receipt for these fees at regular intervals. In 1774 the parson's agent seems to have been a Mr. Ross, for the last entry in that year is as follows:—'.13 *July* 1774, agreed with Mr. Ross to pay £2, 5s. 5d. p. year for marriage dues—paid Mrs. Ross's order, 20 Oct. 1774, 11s. 4½., and 13 Jan. 1775, 11s. 4½d.' The many vexatious and irritating annoyances, like the foregoing, to which Roman Catholics in Ireland were exposed, would not have been endured a day, unless the armed power of England had been at hand to enforce subjection.

Catholics, the abolition of agistment tithe, the removal of vestry cess and ministers' money, the suppression of bishoprics and benefices under the Church Temporalities Act,—these are all undoubted instances of rights once perfectly legal and statutory, but now withdrawn from parliamentary protection, and reduced to nullity as far as law is concerned.

The successive modifications to which in modern times Church property in Ireland has been subjected, although stigmatized, when enacted, as unjust, sacrilegious, and blasphemous, have notwithstanding been accompanied by a singular improvement in religion, whether Protestant or Roman Catholic. The Anglican 'Churches,' observed Primate Beresford (at page 22 of his 'Charge to the Clergy,' 1864), 'have well-nigh trebled in number within the last century, and are yearly multiplying. The ministers of the Church have increased in like proportion. Above all, spiritual life has grown and has been strengthened within her.' The Roman Catholic places of worship, on the other hand, which formerly were mean cabins or huts without cross or belfry, and lay in glens or obscure localities, have been replaced, since the pressure of penal legislation was removed, by massive edifices, cross-crowned and flanked by seminaries, or convents, or clergy-houses. The good which the Roman Catholic Church (to use the words of Dean Byrne) has done in 'strengthening the fabric of society, by enforcing the obligations of moral duty,' is proved by the increased temperance, sobriety, and morality of the Irish. 'The male portion of them,' said Lord Morpeth in 1841, 'exhibit at the present moment more sobriety, and the female portion more chastity, and both show more power of endurance under calamity the most trying and aggravating, than could be attributed to the inhabitants of either of the sister countries.' There seems therefore no just cause why proposals for further modifications of Irish Church property should not be entertained in a candid and rational spirit by all who are anxious for 'the extension of the means of religious instruction and consolation to the whole people.'

Nor is there anything in the mode in which the present contest about Irish Church property is conducted, which need irritate the friends of religion in general. Sir John Gray, who is a Protestant, leads an attack upon the Temporalities, not the Church—upon endowments, not doctrine. As member for Kilkenny, he seems somewhat appropriately selected for the purpose. That borough contains 1401 Anglicans, 171 Dissenters, and 16,141 Roman Catholics. Three churches in Kilkenny city afford ample church accommodation for the members of the Established Church in that locality, even if all of them, aged over five years, should choose to attend divine worship at

the same time. There is a bishop, whose net income is £3867, 9s. 6d., and a dean, precentor, chancellor, treasurer, archdeacon, and six prebendaries, whose united revenues amount to £6971, 4s. 5d. The entire diocese of Ossory, to which Kilkenny belongs, contains 8258 Anglicans, 580 Dissenters, and 131,248 Roman Catholics. The value of the benefices (exclusively of the bishopric and of glebe-houses, etc.) is £21,050, 19s. 6d. For the spiritual advantage, accordingly, of each Anglican in Ossory, the State has provided a sum averaging £2, 10s. 10d. per head, without reckoning other sums paid to chaplains of prisons, asylums, and workhouses. The Roman Catholics, who of course do not receive one farthing of the ancient endowments of their religion, have the bitter consciousness that their own Roman Catholic ancestors founded, in 1178, the very cathedral in which the Anglican bishop has his throne. That bishop, moreover, is one whose views are little calculated to soften the asperity of such bitter recollections. He and his clergy have steadily refused to administer the national funds voted for education, and thus have separated themselves from almost all intercourse with Roman Catholics. Kilkenny borough has, besides, a special grievance of its own. When St. Canice or Irishtown, part of Kilkenny city, was disfranchised at the Union, the State gave £15,000 compensation, which sum was allocated, not to general purposes nor for the benefit of all creeds, but to the Ecclesiastical Board of First Fruits, in order to swell the funds applicable to the erection of churches and glebe-houses for members of the Established Church!

Sir John Gray, it must be confessed, has done his 'spiriting' with a gentleness positively surprising in the representative of a borough inheriting such traditions. His motion was simply 'that the position of the Established Church in Ireland is a just cause of dissatisfaction to the people of that country, and urgently demands the consideration of Parliament.' If 'the people of that country' consists of the 5,105,610 inhabitants who are not members of the Established Church, then the first part of Sir John's motion is a truism, for it is utterly impossible to term 693,357 Anglicans (who form less than twelve per cent. of the entire population) 'the people of that country.' The remaining part of Sir John's motion is also a truism, if the deliberate opinions of Ministers of State, expressed during the last forty years, are of any weight. Perhaps it may be useful to call to remembrance a few of those opinions. The Marquess of Anglesea was in 1828 appointed Lord-Lieutenant of Ireland by the Duke of Wellington, and subsequently served the same office under Earl Grey, with Lord Plunket as his Chancellor, and Mr. Stanley, now Earl of Derby, as his Chief Secretary.

Lord Anglesea thus expressed himself in a letter quoted by Mr. Ward in the House of Commons in 1835:—'The Establishment, which at all times far exceeded the wants of the Protestant congregations, has hitherto been upheld by the State, mainly on the ground that it served the temporal use of consolidating the connexion between the two countries. But this service it no longer performs. Instead of strengthening the connexion, it weakens it.'[1] Earl Fortescue, Lord-Lieutenant under Lord Melbourne's administration, from 1839 to 1841, declared in 1844, 'that it was most essential to the peace and contentment of Ireland that some legislative and established provision should be made for the Roman Catholic religion,' and could not find any means by which such a provision could be made, 'so much in conformity with the ordinary rules of justice and common sense, as the appropriation to its use of a part of those funds which had been originally given for the religions of all denominations.' The Earl of Carlisle, Lord-Lieutenant under Lord Palmerston for nine years, and previously Chief Secretary in Ireland for six years, said, 'The only intelligible ground on which an established religion could rest, was on its being the opinion of the majority—the opinion of the majority exceeding in number those who profess any other faith.' The chief governors of Ireland who used this language were, it must be remembered, members of the Established Church, and patrons of church-livings both in their private and public capacities. Three Chancellors of England, Brougham, Truro, and Campbell, spoke, more strongly than the three Lords-Lieutenant just quoted, on the same theme. Brougham regarded 'the grand abuse of the Irish Established Church' as 'the master evil' and 'the source of perennial discord.' Lord Truro said 'the Irish Church was at the bottom of all the unhappiness which Ireland suffered.' Lord Campbell (Chancellor of England under Lord Palmerston) 'believed the Protestant Church in Ireland to be one of the most mischievous institutions in existence.' Earl Grey, a Cabinet Minister from 1846 to 1852, asserted that 'it was not in human nature that the Irish people should feel otherwise than indignant that a large endowment, originally granted for the purposes of the Catholic religion, should be taken away and applied exclusively to the religious instruction of a small fraction, and that the richer fraction of the people.' He also believed 'the Church of Ireland to be the main source of all that misgovernment and oppression under which the Irish

[1] This, and other quotations which follow it, have been taken from a small but useful book, compiled, it is believed, by Mr. Aubrey De Vere, entitled, *The Church Establishment in Ireland, Past and Present. Illustrated exclusively by Protestant Authorities*, etc. Dublin: G. P. Warren. 1863.

for nearly three centuries have suffered.' Sir George Grey, Home Secretary from 1846 to 1852, was of opinion that a complete union between England and Ireland 'never could be effected so long as an established and endowed Church of the minority exclusively existed.' And Lord Lytton, who served in Lord Derby's Cabinet as Colonial Secretary, considered the words 'Irish Church' to be 'the greatest bull in the language.' 'It was called the Irish Church because it was a Church not for the Irish.' 'The Protestant Establishment . . . stood upon the gigantic ruins of the Catholic Church property.' 'The Church in Ireland costs as much for the police and soldiers as for the clergy themselves.' 'Do we,' asked he, 'imitate the Saviour or the Impostor, when we carry the Bible in one hand and the sword in the other?'

Earl Granville, appointed President of the Council under Lord Palmerston in 1859, was of opinion that 'the principle on which the Irish Church was established was erroneous.' Mr. Milner Gibson, President of the Board of Trade under the same Premier, thought that 'so long as the Establishment' remains in Ireland, 'it must be looked on by the bulk of the population as a badge of conquest and degradation.' Lord Palmerston himself held 'that the revenues of the Church of Ireland were primarily destined for the religious instruction of the people;' and Earl Russell, the successor of Lord Palmerston in the premiership, believed that so long as the condition of the Irish Church is 'territorial, the contentment of the people never will exist.' This *catena* of Protestant authorities upon the Irish question, consisting of Lords-Lieutenant of Ireland, Chancellors of England, Secretaries of State, and Prime Ministers, may be fitly closed by the testimony of two Chief Secretaries for Ireland. One, Lord Hatherton (formerly Mr. Littleton), said 'the nature of the Established Church in Ireland was an anomaly without a parallel in the history of the world.' The other, Mr. Chichester Fortescue, in the recent debate on Sir John Gray's motion, declared that he 'felt dissatisfied as a Protestant, even more than Roman Catholics could have felt dissatisfied, with the position of things to which the first part of that resolution referred,' and also said 'that a just and permanent settlement' of the question would 'be one that would most contribute to the social, political, and religious interests of the country.'

The mere mention of the names of the eminent statesmen whose sentiments have been just quoted, ought to be sufficient proof that they did not regard the overthrow of the United Church, either in England or Ireland, to be a necessary consequence of the removal of Irish Church Temporalities. It is pretty evident that they distinguished between the Church and

the Establishment, and believed the latter to be a hindrance to religion, and an injury to the State.

As, however, it has been frequently asserted, by some who are looked on as representatives of the Anglo-Irish clergy, that the Church itself, both in England and Ireland, is in danger of destruction if Irish Church revenues are interfered with, it may be useful to review some of the principal statements which in past and present times, have been published in defence of the Establishment. In 1786, Dr. Duigenan, a lay Fellow of Dublin University, and who represented the borough of Armagh in the last Irish Parliament, issued, under the signature of 'Theophilus,' 'An Address to the Nobility and Gentry of the Church in Ireland as by Law Established,' and argued that 'the abolition or reduction of tithes' was equivalent to 'a translation of property from the clergy of the Established Church to Popish ecclesiastics;' and that the payment of tithe in the manner 'it was then payable by law, was the properest mode of raising a maintenance for the clergy.' He subsequently published, in 1798, in his own name, 'An Answer to H. Grattan,' in which he called Edmund Burke 'the apostle of Popery,' and asserted that 'the public taxes were chiefly paid by the Irish Protestants.' He also said that 'of the mass of real and personal property' of Ireland, 'nineteen out of twenty parts were in the hands of Protestants,' and that 'the whole Church revenues, equally divided among the clergy, would not produce to each £150 per annum.' About the same period Bishop Woodward of Cloyne stood forward as a champion of the Temporalities, and wrote, in 1787, a pamphlet, entitled 'The present State of the Church in Ireland,' of which four editions were published within twelve days, and nine within a few months of its first issue. In this work the bishop represented 'the Protestant interest' as in danger, and warned 'the Protestant proprietor of land that the security of his title depended very much, if not entirely, on the Protestant ascendency.' He then improved the 'poverty plea,' calculated the net income of parishes in fourteen dioceses, deducted the cost of collection, and five per cent. for insolvencies (an item unaccountably omitted by modern valuators,) and reduced the average net income of each clergyman to the sum of £133, 6s. per annum, 'a sum less,' as his Lordship declared, 'than what a minister in Scotland gets on a average,' or than the average pay of a Government chaplain, which was then '£114 and lodgings, with liberty to take clerical duty when not in garrison or actual service!' So convinced was this worthy bishop of the low value of livings, that he felt constrained to give his own son, and that within three years of his taking holy orders, three or four of those preferments which appeared to his Lord-

ship so miserable, which, however, in the present day, notwithstanding the depreciation which Church property has, it is said, suffered since Woodward's time, are worth more than a thousand pounds a year! Bishop Woodward did not forget to mention that in England there was one clergyman to every five square miles, but in Ireland only one to every twenty-three square miles. He thus predicted the dreadful effects of any diminution of the temporalities:—'Any reduction of the incomes of the parochial clergy must be highly injurious, a considerable one fatal, to the Protestant Established Church. It must, in the first place, perpetuate large unions, it must render small parishes incompetent to support a resident minister: of course put a stop to the building of glebe-houses, and not only prevent the erection of new churches, but shut up a considerable number of the old ones. The number of the Protestant clergymen must in the same degree be diminished.' It is consoling to remember that these doleful predictions not only have not been fulfilled, but have been actually falsified by events. According to the present Irish Primate, the number of churches and clergymen has been trebled since 1787. But Bishop Warburton, who held the see of Limerick from 1806 to 1820, has probably left the best exposition on record of that defence of the Temporalities which consists in 'the multiplication of churches and resident clergy.' In a letter,[1] dated in 1810, he details the improvement then taking place in the Irish branch of the United Church. 'Parliament' (he observes) 'now wisely grants £50,000 per annum for the purposes of building churches and glebe-houses, and for purchasing glebes, so that during the last seven years more has been done in that way than in a century before that period.' 'I have been employed,' continues his Lordship, 'for some weeks past in Kerry, inspecting and constructing some new churches in the most distant and wildest parts along the coast from Kenmare to Dingle. They had never seen a bishop there before, and in some parishes, I am sorry to say, they had never seen a Protestant minister! I have now given them churches and resident clergy, which must have the best consequences, both religious and political. With respect to Ardfert Cathedral, it was originally a very extensive and magnificent building—totally ruined in the wars of Cromwell; part of it is now fitted up neatly, which serves also for the parish church. The Chapter is complete; I have just revised and rendered it efficient. It consists of a Dean, Archdeacon, Precentor, Chancellor, Treasurer, and Archdeacon of Aghadoe. There is also a Minor Canon—all endowed.' When Bishop Warburton speaks of 'giving'

[1] See Wakefield's *Account of Ireland, Statistical and Political*, vol. ii. p. 468. London, 1812.

churches and clergy, it suggests the recollection of another Irishman who 'out of his great bounty built a bridge at the expense of the county,' for that prelate[1] was not famous for giving such things, unless in the way of giving churches to his sons, and clergymen to his daughters. Those parishes, moreover, in Ardfert diocese, which lie on the coast between Kenmare and Dingle, do not seem to have been benefited much by the exertions of his Lordship. They are eighteen in number, and in 1810 were comprised within twelve benefices, of which two had no churches either then or afterwards, and were therefore suspended. Two other benefices remained without churches during Warburton's episcopate. The churches of the remaining eight benefices were indeed built or repaired under Warburton, but at the time when he wrote only one had been erected. Of those twelve livings, now reduced by suspension to ten, five have been held since Warburton's time by absentee incumbents, or incumbents whose absence would have been more advantageous than their presence. The 'neatly fitted up' cathedral at Ardfert is still a ruin, and the seven functionaries, forming the Chapter which the bishop 'revised and rendered efficient,' have had no duties to perform, nor a cathedral in which to perform them, if they had any; the office of even the Minor Canon being returned to Parliament as 'a complete sinecure.' Just half a century since Warburton's time, the present occupant of the same See of Limerick, Ardfert, and Aghadoe, uses somewhat similar language regarding a part of that diocese not far from the scene of Bishop Warburton's liberality. In October 1866, Bishop Graves, when consecrating some churches in Kerry, described his labour as 'the consummation of several acts which had brought a great change over the circumstances of this district. Half a century ago, in the lifetime of many now (observed the bishop) listening to him, in this western district of Corkaguiny, there was not a single church nor one congregation of

[1] Warburton was remarkable, even in a most corrupt period, for the way in which he disposed of his church preferments in order to enrich his family. The personal history of this bishop is curious. His real name was not Warburton, but Mongan, and it is not known for certain how or when he was ordained. The tradition is that he was apprenticed to some trade, but, through misconduct, failed to satisfy his master. He then, so the story goes, was inspired with a sudden zeal for Foreign Missions, and received, or said he received, holy orders in London, for the purpose of converting the heathen. He next took passage in a troop-ship bound for Canada, ingratiated himself with the officers, and became chaplain to the troops. He gained the friendship of a nobleman high in command—first by his agreeable qualities as a table-companion, and afterwards by lending him a large sum of money upon slight security. These favours that nobleman afterwards repaid by giving Warburton church preferments, which led eventually to a bishopric.

persons professing the Reformed Faith. What a sad state of darkness was this!' exclaimed the bishop, who went on to denounce the 'superstition and priestcraft' under which the people 'groaned.' But, on referring to the Census Returns and the Reports of the Commissioners of Ecclesiastical Revenue, it appears that there were three churches fifty years ago in that locality, the dates of whose erection were respectively 1808, 1810, and 1816, while there is reason to suppose that other churches, more anciently built, were still standing. The 'great change' which the bishop supposes to have come over that district seems to consist in a very small increase in the Anglican population, which may be accounted for by other causes than the reformation of the inhabitants. Anyhow, the Church-population of the fourteen or fifteen parishes in Corkaguiny barony was, in 1830, a little over 700 souls, who had then five churches, with accommodation for over 800 worshippers. In 1864, in the same parishes, the Church-population amounted to more than 800 souls, who now have eight places of worship affording accommodation for 1200 persons. The State Church, which thus amply has provided for the spiritual wants of the Anglican minority, has left without spiritual aid no less than 21,063 persons who form the Roman Catholic population of Corkaguiny barony. In 1835, when plans of Church reform were supposed to engage the attention of legislators, the discovery began to be published that 'the Church in Ireland was not originally Roman Catholic, and that Henry II. and the arms of England compelled the Irish' to accept Romanism. So it was stated in a pamphlet bearing the imprint of 'Rivingtons: London, 1835,' and entitled *The Irish Church—Important Facts.* In the same year the 'missionary-civilisation,' otherwise called the 'resident-gentry,' theory was forcibly put before the House of Lords by Blomfield, Bishop of London, who, quoting the words of Bishop Jebb of Limerick, described Irish clergymen as 'missionaries of civilisation,' and as 'absolutely creating manufacture' by their activity. They go, said the bishop, 'through bogs, across mountains, over miles of scarcely accessible country.' 'They exert themselves to encourage the cultivation of flax; to superintend the manufacture of wheels; to distribute with their own hands the implements so manufactured; to pay domiciliary visits for the purpose of observing and ascertaining the progress of industry.' Flax was fortunate in exciting so much episcopal and clerical enthusiasm, and Bishop Stopford of Cork, who bequeathed 100 spinning-wheels to 100 poor women, 'to be distributed by the Dean and his curate,' was no doubt highly to be commended. But yet there are clergymen and laymen also who cannot but feel this

clerical devotion to spinning-wheels to be somewhat discordant from the tenor of the Ordination Service.

Most of the above statements in defence of the Temporalities have been repeated with variations and additions in a compilation recently published by the Church Institution, under the imposing title of *Facts*. Perhaps the most remarkable of the newly coloured 'facts' are those about the Protestantism of St. Patrick, the identity of the present Anglo-Irish Church with that of St. Patrick in 'doctrine, discipline, and worship,' and the assertion that the 'regular and ancient succession of bishops from St. Patrick has descended continually in the Church in Ireland to the present day.' The Protestantism of Patrick, and the identity of the present Reformed Church with that founded by St. Patrick, which, according to Dr. Todd, had no diocesan episcopacy until the twelfth century, are matters upon which a great deal might be said, in opposition to the flippant assertions of eloquent and zealous speakers at Church Congresses. The episcopal succession from Patrick to Primate Beresford can hardly be considered as proved, unless those imagined links are discovered, which may connect in unbroken continuity the bishops of London, or the Scotch prelates, with the ancient see of Armagh. The present Anglican bishops in Ireland are the ecclesiastical descendants of those eight bishops whom Charles II. at the Restoration in 1660 found in Ireland. The ecclesiastical pedigree of those eight prelates must, according to the hitherto published records[1] of their consecrations, be traced to John Leslie, Bishop of the Isles in Scotland; John Maxwell, Bishop of Ross, also in Scotland; and to Edmund Bonner, Bishop of London. Thus, instead of St. Patrick and his successors, one English and two Scotch prelates are the episcopal forefathers[2] of the Anglo-Irish Church.

A much more important branch of this question is that which relates to the actual state of the Irish Establishment at present. The population of Ireland consists of 4,505,265 Roman Catholics, 693,357 members of the Established Church, or Anglicans, and 600,345 members of all other persuasions, who are chiefly Presbyterians, and may be called 'Dissenters.' There are 2428 parishes in Ireland, of which 199 contain no Anglican inhabitant, and 575 contain an Anglican population

[1] See Cotton's *Fasti Ecclesiæ Hibernicæ*, vol. iv., Appendix, pp. iii.-xxxix. ed. 1850.

[2] See 'The alleged Conversion of the Irish Bishops to the Reformed Religion at the Accession of Queen Elizabeth, and the assumed Descent of the present Established Hierarchy in Ireland from the ancient Irish Church, Disproved. By W. Maziere Brady, D.D.' Fourth edition enlarged. London: Longmans, 1866.

in no case exceeding twenty souls. Thus in very nearly one-third of all the parishes in Ireland, the parochial system, as far as members of the Established Church is concerned, is almost a myth. To disguise, as much as possible, this lamentable failure, various shifts have been resorted to. The very name of 'parish' has been declared inapplicable to 918 of those ancient parishes, and their proper appellation has been pronounced to be 'denomination.' They have been added to other parishes, and their distinct individuality has been taken away on their entrance into the compound of parishes called a Union, somewhat in the same manner as penal convicts forfeit their Christian names and surnames, and receive a numeral for their designation on entering Dartmoor or Pentonville. Some of these parishes have been also compared with thinly peopled parishes in England, as if their Roman Catholic inhabitants were no more worthy of being counted in the population than mere kites or crows. They have been termed 'insignificant,' and likened unto little parishes 'only forty yards square.' Yet, in truth, those 199 parishes which have no Anglicans at all, contain 98,017 Roman Catholics, and possess an average population, for each *parish*, which amounts to 492 Roman Catholic souls, a higher average than that of the Anglican *benefices* in Ireland. And those 575 parishes, not one of which contains more than twenty Anglicans, have an average population of more than 1000 Roman Catholics per parish. Nor will the Establishment appear to much better advantage in its diocesan divisions. In none of the thirty-two Irish dioceses are the Anglicans equal to the Roman Catholics, while in four dioceses the Presbyterians outnumber the Anglicans.[1] In no less than twenty dioceses, the Anglicans average only five per cent. to the total population, forming an average population of 6949 Anglicans and 879 Dissenters per diocese. Yet (as the following table will show), there is an average of 131,150 Roman Catholics to each of these twenty dioceses, which include very nearly one-half of all the inhabitants of Ireland.

[1] See the Census of Ireland, 1861, Part iv. p. 29.

Dioceses.	Proportion per cent. of Anglicans to the Population of each Diocese in 1861.	Population.			Number of Benefices in each Diocese.	Value of Livings in each Diocese.
		Anglicans.	Dissenters.	Roman Catholics.		
1. Kilfenora, .	1·1	251	2	22,789	4	£1,660 19 11
2. Kilmacduagh,	1.8	434	31	24,333	4	1,961 0 8
3. Emly, . .	2·3	1,414	75	60,707	17	6,513 4 11
4. Ardfert, .	2·9	6,424	487	215,028	44	12,425 1 1
5. Tuam, . .	2·9	9,041	1,553	302,367	47	14,191 8 6
6. Achonry, .	3·1	3,392	275	105,203	12	3,598 16 7
7. Lismore, .	3·3	4,775	721	139,769	43	11,638 17 5
8. Cashel, . .	3·9	4,721	459	114,831	37	16,419 12 7
9. Clonfert, .	3·9	2,521	439	61,183	14	3,964 11 8
10. Limerick, .	5·0	8,679	1,619	162,324	49	15,120 14 3
11. Elphin, .	5·2	10,506	1,865	189,508	38	8,237 12 3
12. Killala, . .	5·4	4,724	1,014	81,337	14	4,699 17 2
13. Cloyne, . .	5·5	11,746	1,126	202,294	80	30,708 11 6
14. Killaloe, .	5·6	12,700	1,298	211,098	63	16,817 5 4
15. Ossory, . .	5·9	8,258	580	131,248	54	21,050 19 6
16. Meath, . .	6·4	16,289	1,929	235,136	105	30,717 11 11
17. Ross, . .	6·8	4,746	617	64,540	27	7,090 3 8
18. Waterford, .	6·8	2,943	1,091	39,472	9	3,271 18 11
19. Ardagh, .	8·1	11,044	1,069	124,185	30	12,042 3 1
20. Ferns, . .	9·5	14,383	1,335	135,650	61	20,193 12 0
Totals, .	...	138,991	17,585	2,623,002	752	£242,324 2 11
Averages per Diocese	4·7	6,949	879	131,150	...	£12,116 2 6
Averages per Benefice	...	184	23	3,488	...	£322 4 9

It will surprise no one, who remembers how parishes were turned into benefices, to learn that the thirty-two Irish dioceses have been reduced, so far as bishops are concerned, to twelve. Each of the present bishops presides over two or more dioceses, with the exception of the Bishop of Meath, who has but one. Their episcopal functions are exercised in superintending, on an average to each bishop, 125 benefices and 181 clergymen. Their emolument, which is about £36 per benefice, averages to each prelate £4592 of net income, exclusively of the value of their palaces.

The Irish benefices have been returned by the Ecclesiastical Commissioners as 1510 in number. Looking at these benefices in the mass, it appears that one-half of them, or precisely 752, form twenty dioceses, and contain 184 Anglicans, 23 Dissenters, and 3488 Roman Catholics per benefice. The average gross income of these 752 incumbents is £322 yearly, but the cost of clerk, sexton, and requisites for divine service, is, at least, £16 additional per benefice. If the cost of episcopal supervision be added, the expenditure of ecclesiastical funds

will be found to average more than £2 per head throughout one-half of the Irish benefices.

Among the 1510 benefices, however, are reckoned certain perpetual cures, not, properly speaking, parochial benefices; but chiefly district curacies or chapelries, whose incumbents are admitted by simple nomination of the patrons, without cure of souls in the old legal sense, and scarcely differing, save in permanency of tenure, from assistant curates. Deducting 218 of these perpetual curacies (whose average gross value is but a hundred guineas each) from the total of 1510, there remain 1292 benefices, of which number 677 contain, in every instance, more than 200 Anglicans apiece. The total Anglican population of these 677 livings, calculating on the basis of the revised summary of the census of 1861, amounts to 630,845 persons, or, on an average, to 932 Anglicans per benefice. The incumbents, however, of these larger benefices are, to a great extent, relieved of their duties by the 218 perpetual curates just mentioned, and by 464 assistant curates who were employed in those benefices in 1864. The incumbents, perpetual and assistant curates, amount together to the number of 1359 ministers, who have, respectively, the spiritual care of 464 parishioners, a number not considered by Archbishop Whately too great for each clergyman. It must also be recollected that there are many places of worship, provided by extra-parochial zeal, which tend to lessen considerably the labour of the parish ministers in these larger benefices. Deducting the gross income of the 218 perpetual cures, and the stipends of the 464 curates-assistant as stated in Stacpoole's return, there will remain an average income of more than £380 yearly for every one of these 677 incumbents, exclusively of the value of glebe-houses, and without reckoning the various stipends paid to these incumbents for ministering to their own parishioners in prisons, asylums, workhouses, and gaols.

If the Anglo-Irish Church possessed merely these 677 larger benefices just noticed, and if St. Patrick, in his zealous Protestantism, had totally exterminated Roman Catholics and Dissenters, as well as venomous reptiles from Ireland, there would remain, notwithstanding, much room for improvement in these livings by re-distribution and better apportionment, than at present exists, of income to work. Some of the incumbents of these livings are so poor as to be quite unable to maintain themselves on their church income in a position of respectability, or to keep a sufficient number of curates to minister to the spiritual wants of their parishioners. In such benefices there is oftentimes little disposition on the part of the Anglican inhabitants to supplement by local subscriptions the deficiencies of the State endowment. It seems as if the State system,

instead of stimulating, actually repressed private contributions for the advancement of the reformed religion, and threw a cold blighting shade over all voluntary efforts for the 'spiritual aid' of the Establishment. But there is another class of benefices to which public attention is far more strongly invited, and which forms an anomaly which would seem to most persons utterly indefensible on any grounds of policy or righteousness. When the 218 perpetual cures and the 677 larger livings have been deducted from the total of 1510 benefices, there will remain 615 smaller livings, in not one of which does the Anglican population exceed 200 souls. The distribution of these benefices over the several dioceses of Ireland will appear from the following table :—

BENEFICES WHOSE ANGLICAN POPULATION IS

	20 and under.	Over 20 and not over 30.	Over 30 and not over 40.	Over 40 and not over 50.	Over 50 and not over 100.	Over 100 and not over 150.	Over 150 and not over 200.	Totals.
Armagh, .	5	...	3	...	8	3	3	22
Clogher, .	...	...	...	...	2	...	...	2
Meath, . .	7	2	6	5	18	17	7	62
Derry, . .	...	...	...	...	2	2	1	5
Raphoe, . .	...	...	...	...	...	1	4	5
Down, . .	...	1	...	...	3	1	4	9
Connor, . .	...	...	...	...	1	3	2	6
Kilmore, .	...	...	...	...	...	1	...	1
Elphin, . .	3	1	4	...	5	6	2	21
Ardagh, .	...	...	...	1	2	4	4	11
Tuam, . .	3	2	1	2	11	3	3	25
Killala, . .	...	...	...	...	...	2	1	3
Achonry, .	...	...	2	1	2	...	1	6
Dublin, . .	2	4	2	1	9	6	4	28
Kildare, . .	2	2	...	4	6	5	1	20
Ossory, . .	6	8	3	2	10	8	4	41
Ferns, . .	...	2	...	1	13	6	4	26
Leighlin, .	6	...	3	1	11	5	3	29
Cashel, . .	3	1	2	5	5	5	3	24
Emly, . .	5	1	2	1	4	2	1	16
Waterford, .	2	...	...	...	1	3	...	6
Lismore, .	9	4	2	6	7	...	2	30
Limerick, .	6	4	4	3	7	5	3	32
Ardfert and Aghadoe,	2	2	4	2	15	4	3	32
Cork, . .	3	3	4	1	11	4	3	29
Cloyne, . .	14	9	6	9	14	8	4	64
Ross, . .	3	...	...	...	4	1	5	13
Killaloe, .	3	2	2	4	12	6	1	30
Kilfenora, .	...	1	...	...	1	1	...	3
Clonfert, .	1	...	1	...	4	1	3	10
Kilmacduagh,	...	...	...	...	2	1	1	4
Totals, .	85	49	51	49	192	114	75	615

It is evident that, according to the foregoing figures, a good many of the incumbents of those 615 parochial benefices must have comparative sinecures. But on examining those parishes one by one, by the aid of the census and other returns, the state of the Anglican or Established Church will appear somewhat extraordinary. Those 615 benefices contain a population of 47,628 Anglicans, 19,745 Dissenters, and 1,389,148 Roman Catholics. In other words, these 615 livings have an average population of 77 Anglicans, 32 Dissenters, and 2258 Roman Catholics per benefice. In 229 of these benefices the average Anglican population is only twenty-three, and, allowing five souls to a family, and deducting the two families of the rector and his clerk, there appears to be an average of not quite three families for the ministerial sphere of duty of each of these 229 incumbents. The average value of these smaller livings is £296 yearly, exclusively of glebe-house, and (adding the cost of episcopal functions, and of clerk, sexton, etc.) each of the twenty-three souls in these 229 benefices will be found to receive the advantage of an expenditure of at least £15 per head from the Church funds. Subdividing, in another way, these 615 livings, there will be found eighty-five of them, in none of which does the Anglican population exceed twenty. The actual average number of Anglicans in each of these livings is eleven. The total Anglican population of all these eighty-five livings is 955, and the total cost averages £20 per head out the ecclesiastical revenues.

There is one of these smaller benefices, namely, Manfieldstown, in the diocese of Armagh, which has acquired notoriety, as being the only parochial benefice in Ireland which has no Anglican population at all, and yet has an incumbent, a clerk and sexton, a church and the usual requisites for divine service. 'A congregation attends from the adjoining parish, which is conveniently,' so it is said, 'situated for that purpose.'[1] The gross value is £215, 12s. 3d., and altogether more than £250 yearly is spent out of the Church revenues upon the spiritual necessities—not of the Anglican parishioners, who amount to *nil*, nor of the Roman Catholics who number 471, but of the 'adjoining parish,' which contains but fifty-five Anglicans, and has an incumbent and church of its own. The present rector of this benefice without souls is a wealthy bachelor of some thousands a year, who earns his church income by going each Sunday, with his servants and retinue, out of the parish where he lives, and into the parish where he does not live, thus, in common parlance, making two bites of that very

[1] See 'Facts' (?) respecting the present state of the Church in Ireland, 5th edit. p. 10. Rivingtons: London, 1866.

small cherry represented by the division of his neighbour's total Church-population of fifty-five into two congregations. This application of Church funds does not, however, secure in all cases loyalty to the doctrines of the Church. The previous rector of this sinecure parish, who had enjoyed it for more than a quarter of a century, and along with it two other clerical offices in another province, bequeathed one thousand pounds to build near Dublin a Presbyterian church. Another clergyman, who for twenty-five years held a small incumbency in the diocese of Cashel, which contained 28 Anglicans and 2947 Roman Catholics, left, at his death, which occurred only a year or two ago, his house and farm to the Roman Catholic priest of the parish.

Hallam, in his *Constitutional History* (vol. iii. p. 484), likened the Anglo-Irish Church to 'a government without subjects,' or, 'a college of shepherds without sheep.' And it must be confessed, his comparison is strikingly appropriate when applied to benefices where the Anglican population is counted by tens, and the Roman Catholic by thousands. 'No one can deny,' observed Bishop Dickenson, 'that as far as such parishes are concerned, the Church is overpaid and comparatively sinecure.' 'There can be no doubt,' said the same authority, in reference to a reform which he vainly hoped to see, 'that the income of such parishes will be diminished. It is useless for the Church to continue its struggles against this diminution. It is worse than useless; it is pernicious to its character, because it will be represented continually as drawing from an impoverished people, money which it does not employ effectively for the public good.'[1] Yet, it is asserted by some, that these parishes ought to be maintained for the sake of the 'shadowy hope of a remote proselytism.' And by others, it is said that there are no inequalities in the Irish Church 'except such as are unavoidable, and exist to some extent in every Church establishment'!

The amount of Church revenue in Ireland has been very variously computed. Some say £390,000 or £400,000 is the income of the Church, but they base their calculations on the net income returned by the Commissioners, which is the net income of incumbents merely, and not of the Church. At page 57 of Stacpoole's return, a complete view is afforded of the process by which a gross income of large amount is reduced to a net income of nearly one half the gross; and this net income appears to be in truth what remains, after paying curates and all manner of charges, so as to render the living a perfect

[1] *See Vindication of a Memorial respecting Church Property in Ireland, etc.*, pp. 12, 13. Dublin: Milliken, 1836.

sinecure to the incumbent.[1] The total Church revenue of Ireland was stated at page 114 of Stacpoole's return to be, from all sources, £586,428, 8s. 1d., and in 1861, the Ecclesiastical Commissioners reckoned the total income of the Church at the sum of £580,419. But while it is certain that the value of episcopal palaces and glebe-houses was not included in that return, it is uncertain whether the Commissioners included *all* the sums received by themselves out of Church revenues. It is highly probable, that if the value of all the Church property in Ireland was fully stated, including the value of the Church lands, of which perpetuities have not yet been granted, it would amount to £700,000 per annum or more.

The late Archbishop Whately was fully sensible of the dangers resulting to the Church from its temporalities, which, like the fatal garment of fable which burnt up its wearer, seem to scorch and kill the inner life of the Church. In 1835, he proposed a plan for getting rid of these temporalities altogether, which plan consisted in the purchase of all Irish tithe property by the State, and vesting the purchase-money in a board of commissioners, who should be empowered to buy land or annuities for the future maintenance of the clergy. The chief

[1] The particulars of this benefice, as given in the Parliamentary return, are as follows:—

Gross income,					£1033 14 8
Deductions,—					
Two Curates,	£180	0	0		
Tax to Ecclesiastical Commissioners,	35	10	10		
Instalments to Ecclesiastical Commissioners on account of a loan by Board of First Fruits,	23	8	6		
Rent of glebe lands,	43	18	3		
County rate on land in incumbent's occupation,	4	11	0		
Interest on charge paid to predecessor and not recoverable, at ten per cent.,	34	12	4		
Do. do. at five per cent. on sum recoverable,	51	18	5		
Estimated poor-rates,	93	6	4		
Visitation and diocesan fees,	6	16	4		
Resident preacher at Cathedral,	6	6	0		
Insurance on glebe-house,	7	4	0	——	487 12 0
Net income,					£546 2 8

The *Clerical Journal* of Nov. 30, 1865, has the following comment upon this living, which forms the corps of the Chancellorship of Limerick Cathedral:—

'This result is certainly startling, and, if the calculation be truthful, reduces the value of this preferment by nearly one-half. On referring, however, to the returns of ecclesiastical revenue made up in 1837, it appears that a house was built forty-six years ago, on this benefice, at a cost of £2861, 10s. 9½d., the annual value of which is altogether omitted from the gross income, although charges on account of it, to the amount of £117, 3s. 3d., appear among the deductions. As any dilapidations suffered to accumulate

advantages which would have been derived from Whately's plan were the following:—1*st*, The State would have reaped, and that without loss to the Church, a large pecuniary profit by buying at about sixteen years' purchase, a property worth much more. 2*dly*, The Church would have gained a sufficient income, placed on a more secure foundation, with full power of redistribution according to work. 3*dly*, All irritation arising from pecuniary transactions between the clergy and their flocks would have ceased,—a matter still of great importance, as forty-one per cent. of landed proprietors in Ireland are Roman Catholics. 4*thly*, Protestant ascendency would have disappeared from Ireland, and with it that 'crying grievance,' which, as Mr. Sergeant Talfourd observed, 'preys upon the vitals' both of England and Ireland. Whately's views did not, however, meet with much favour; the memorial to the Crown, in which they were embodied, was not numerously signed; and Dickenson, the Archbishop's chaplain, had to complain, that, with a few exceptions, 'vituperation was substituted for reasoning, and personal calumnies invented as grounds of opposition to the memorial.'

It is deeply to be regretted that the Anglican bishops in Ire-

since its erection by the late incumbent have been paid by his representatives to the present Chancellor, it follows that the gross income should be increased by the value of the house, or at least that the charges on account of it should be struck off the deductions. If this latter alternative be adopted, the net income will be increased by the sum of £117, 3s. 3d. But the Chancellor of Limerick has another source of income not specified in the gross income, namely, the amount of what is paid to him or his curate, as chaplain of Rathkeale Workhouse, for attending to the Protestant inmates of that institution, who are about sixteen in number. This will add another twenty pounds at least to the net income of the Chancellor. His net income will accordingly be, if these calculations are correct, £624, 15s. 3d. per annum, besides whatever profits he may derive from the land in his own occupation, over and above the rent. There is something, however, besides the revenue which requires to be taken into consideration in estimating the net income of the Chancellor of Limerick. The work done for the money is surely a part of the calculation. The entire population of the five parishes forming the corps of the Chancellorship amounts to the number of 6796 individuals, of whom 578 only are members of the Established Church, and all of these Anglicans, except 26, live in two parishes, Rathkeale and Kilscannel. 578 individuals are not an enormous number to be in one clergyman's care, nor is it impossible for one rector to serve two churches with a workhouse. The Chancellor of Limerick, however, pays two curates, and also a resident preacher at Limerick Cathedral, to discharge the entire of his duties as Chancellor, which are stated (at page 200 of the Second Report of the Commissioners of Ecclesiastical Revenue, printed in 1834), to consist of "preaching six sermons in the year in the Cathedral Church, which duty is discharged by deputy." It thus appears that the net income of the Chancellor of Limerick is either £624, 15s. 3d. for doing little or nothing, or else (adding the sum of £180 paid to two curates) £804, 15s. 3d. per annum, inclusively of house, or £687, 12s. per annum, with a residence, which cost £2861, for discharging the duties incident to the parochial charge of less than 600 souls.'

land are in 1866 just as little disposed as their predecessors were in 1835 to promote Church reform. While it is evident to the world that their Church has utterly failed in its true mission (which is to bring 'the great truths of religion home to the minds of the people'), the Anglican bishops seem indifferent to that fact, and have no plans to propose either for removal of anomalies or remedy of grievances. 'Their strength' (so think their Lordships) 'is to sit still.' But they do not all sit in silence, and, unfortunately for themselves, the recent 'Charges' of some of them have been so loud and so defiant as to excite the anger of their foes and the alarm of their friends. Fierce denunciations of Popery come with ill grace from bishops enjoying the temporal spoils of the Papal Church. Confessions that the Church, as a machinery for political or religious purposes, has failed, after a trial of 300 years, fall with tremendous force from the lips of perhaps the most learned bishop on the Episcopal bench, and go far to damage the institution in whose behalf they were apparently uttered. This is not precisely the period for a bishop of the State Church, like Verschoyle (whose dioceses of Kilmore, Elphin, and Ardagh contain 483,579 Roman Catholics, but only 53,196 Anglicans), to call the religion of the majority of his nominal subjects an 'Anti-Christian communion,' and their spiritual ruler 'Antichrist.' It is hardly fair in a State bishop to talk of Roman Catholicism as a 'leprous spot,' or 'a crop of boils on the fair body of the Church,' and to urge his clergy to make 'no peace with Rome.' Bishop Fitzgerald, of Killaloe, can scarcely expect many to agree with him when he says that 'even viewing the measure as a question of statesmanship, it was the wisest policy' to adopt a system which has resulted in giving 319,403 Roman Catholics to the nominal control of a prelate, who in reality can count only 15,906 spiritual adherents; for that is the sum-total of the Anglican inhabitants of Killaloe, Kilfenora, Clonfert, and Kilmacduagh. But whoever wishes to see how far Irish bishops will proceed in supporting the present Establishment, had better read the 'Charges' of Primate Beresford and Bishop Higgin, who seem to vie with each other in demonstrating that the Irish anomaly is faultless, or at least has no faults except those engendered by time. A parish without parishioners, or a church without a congregation, appears to those prelates only a reasonable and happy variety, by no means to be deplored or remedied, but to be regarded as on the whole beneficial. It is, of course, natural in Primate Beresford, whose antecedents are quite in accordance with such sentiments, to exclaim 'No Surrender;' but it is astonishing to find Bishop Higgin, a sober Englishman, echoing such a cry. Bishop Higgin regards as 'incrustations

of time' those anomalies which existed when Protestantism was first forced on the Irish by English power. He appears to think that Irish tithes, originally granted in 1172, by Roman Catholics for the support of Romanism, were bequeathed 'to our own branch' of the Church by the piety of Protestants! And he actually hints that the Reformed Church, if deprived of her monopoly of the Irish religious endowments, would be reduced to the position of the persecuted early Church, 'while she was worshipping in the upper-room, or in the dark catacomb!' Yet a little before this pathetic appeal *ad misericordiam*, the worthy bishop had boasted of his Church as possessing the 'great bulk of the landed proprietors,' the 'capitalists,' and 'the members of the learned professions in Ireland.' It surely would not amount to a very grievous persecution, if so rich and so enlightened a minority as that of the learned members of the Anglican Church in Ireland were permitted to maintain its own ministers!

There seems, then, small reason to expect from Anglican bishops in Ireland any aid towards the solution of the Irish difficulty. The Reformed clergy appear secure in their life-interests, and therefore are contented to allow things to take their course, and to let their ecclesiastical posterity take care of itself. The language of some Church defenders, who say the ecclesiastical settlement of Ireland cannot be disturbed without a revolution, sounds as if an appeal to force or a civil war in behalf of their endowments was regarded as probable. There are, doubtless, Anglican clergymen in Ireland, as there were in the Tithe war of thirty years ago, who would suffer the blood of the people, whose 'conversion' they affect to desire, to be shed rather than surrender the revenues to which their moral claim is so dubious; but the issue, it is to be hoped, will be decided by reason, not by the sword. It is a permanent, not a temporary settlement of the question that is desired. 'I think it not unlikely' (wrote Whately to the Bishop of Llandaff in 1832) 'that the Orange party spirit, if called into action in the manner you speak of, may crush the opposite party for a time; but the permanent pacification of Ireland through the Orange party can only take place by the total extermination of the Roman Catholic population.' That great and good man, Richard Whately, although himself an archbishop of the Anglican Church in Ireland, was not blind to the anomalous position of that Church, which 'in large districts of Ireland,' he did not hesitate to say, was 'such as, by the help of a map, you might establish in Turkey or in China.' He did not deny the grievance or 'the sort of insult implied by the spectacle of an endowed clergyman whose flock are not of his persuasion.' He rejoiced when it was

'proposed to adopt what has been called the re-distributive or congregational system, namely, that of proportioning the revenues in future in some degree to the amount of their congregations, and not merely to the physical extent of territory.' He was not ashamed to confess the truth that 'the Papists are goaded to madness by perpetual causes of irritation;' and he did not shrink from pointing out the only remedy sufficient, in his opinion, to heal the disorders of Ireland. 'In fact' (said Archbishop Whately), 'I have no hope whatever of permanent peace till the Irish clergy are maintained by Government. And as the spoliation of the revenues of the Roman Catholic Church was an act of the King and Legislature, so it is the part of the nation —the United Empire—to rectify the wrong, and that at the public expense.'

And some such settlement as that proposed by Whately, and indicated at p. 363, seems the only mode of preserving a maintenance for the successors of the present Anglo-Irish clergymen, who are secure, no doubt, of their own life-interests, and therefore ought to adopt, ere it be too late, measures for providing for the future of their Church. That Church will not be able 'to save her position in the constitution by clinging to the skirts of the English Church, or appealing to the Act of Union.'[1] It will not be maintained for the benefit of 'the leading classes,' or as guardian of faith and 'leader of religious thought,'[2] among a population which rejects it. It will be maintained, if at all, by the good sense and rational conduct of its own members, if they shall have courage to descend from an untenable position, and accept a solution of the question which will take away ascendency and strife, and leave to the clergy a provision competent for their needs. The Irish clergy in general, and those of them especially who prize a Church for the sake of its spiritual efficiency—and not for its wealth—are as deeply interested as Roman Catholics can possibly be, in the speedy settlement of this question. Every debate on the subject exhibits the Anglo-Irish clergy to the world as impediments to just government and opponents of religious equality. Church life must necessarily be paralysed during the protraction of this parliamentary warfare, which is waged on one side in behalf of what all the world acknowledges to be equitable in the abstract, and on the other side for the sake of a pecuniary and political status, which is not only not essential, but is positively damaging, to the religion it pretends to strengthen. The Anglo-Irish Church may continue its struggles against further modifications of its Temporalities, but it will be under the distressing convic-

[1] See *Essays on the Irish Church*, etc., p. 2. James Parker & Co.: London, 1866.

[2] *Ibid.* p. 37.

tion that eventual defeat is certain, while no temporary triumphs can produce peace. A recurrence is, of course, impossible of those horrid scenes enacted in Ireland within living memory, when the legal rights of the Established clergy were enforced by the sword, and when defaulting tithe-payers were shot down by fire-arms, loaded for the occasion by the hands of the rector of the parish, but the old evil party-spirit may be evoked, and the demon of bigotry may spread spiritual desolation throughout the land. Agitation kept up both for the defence and attack of the Temporalities, cannot but be prejudicial in the extreme to the best interests of Christianity, and the cure of souls must continue to languish as long as the plague of religious animosity makes havoc of the Church.

If the case of the Irish people against the Church Establishment, which their conquerors imposed on them, were to be arranged by an appeal to the simplest principles of righteousness, a settlement would be speedily arrived at. The temporalities or establishment would at once be taken from that Reformed Church, which unhappily never at any time possessed —what alone could give an equitable or moral title to the Irish Church property—the spiritualities of the Irish nation. Ample compensation would of course be given to present incumbents and to the holders of private patronage, so that no pecuniary injury would be inflicted on any individual. The property thus resumed by the State would again become available for its original purpose, namely, the supply of religious ministrations to the bulk of the population. The Anglican Church would thenceforth be maintained, chiefly on the congregational system, by the contributions of those wealthy persons, landed proprietors, and professional men who belong to it. But it is said that Roman Catholics will not accept the endowments or temporalities, unless on conditions too liberal for any Government to grant. This alleged hesitation on the part of Roman Catholics opens a most favourable opportunity for the settlement of the question on terms which the Reformed Church could hardly, in strict equity, demand. For the Government have it now in their power to avail themselves of this temporary hesitation and coyness of Roman Catholics as an occasion for granting a large measure of compensation to the Anglican Church, without the least expense to the Imperial resources. The Irish Church property, thus refused by Roman Catholics, will fall into the hands of the State, so that pecuniary gain instead of loss will accrue to the United Kingdom; and Roman Catholics would scarcely offer a very strong opposition to the grant of a liberal compensation to present incumbents, even although that compensation should take such a shape as to provide indirectly for the future

maintenance of the Reformed Church in Ireland as a voluntary institution. For if it be understood that the present religious ascendency of the Establishment shall be removed, and a stop for ever put to the absurd claims of a territorial or parochial Anglicanism, there remains no reason why Roman Catholics should desire the pauperization of congregational Anglican ministers. The Roman Catholic policy seems rather to lie in permitting the erection of a golden bridge for the comfortable retreat of the rival and sister Church, so that she may have no excuse for becoming a clamorous pensioner on the funds of Exeter Hall. But the one thing needful is the abolition in Ireland of the legal supremacy of reformed Anglicanism, and the withdrawal of the temporalities from the Church introduced and maintained by English arms. The disposal of those temporalities, after due provision shall have been made for the satisfaction of existing interests, is a matter of secondary importance, which may be quietly settled hereafter by deliberations for which there will be ample leisure. At present the urging and pressing grievance is the existence of the Establishment; and the removal of this great and monstrous anomaly cannot with safety be long delayed.

Most of our leading statesmen, as has been already shown, have spoken out on this subject; but, strange to say, the tone of the press is far less satisfactory. That a paper animated by the Church principles of the *Saturday Review* should sneer at the proposal to abolish the Irish Church as an idea of *doctrinaires* was to be expected; but it is more difficult to understand why certain papers which claim to be really Liberal should make light of this as a remedy for Irish discontent. They impress on us with wearisome iteration that the existence of the Irish Establishment is not the grievance most frequently and most loudly denounced by the Irish themselves. The fact is beyond dispute: the argument founded upon it is beneath contempt. The Irish do not indeed put forward their Establishment as among the heaviest of the wrongs they have to bear; but is that any reason why England should persevere in doing injustice? How can we tell that the feelings of the people are not moved by the existence of this gigantic iniquity—unconsciously even to themselves? 'It is very shallow,' says Mr. Mill, 'even in pure economics, to forget the influence of the imagination;' and it is still more shallow to forget their influence in the sphere of general politics. How often, in the history of nations, has an oppressed people mistaken the causes of its suffering, and the cure! And is it to be maintained that the governing class is to avail itself of such mistakes so as to perpetuate evils, the magnitude of which it

does not pretend to deny? Is not this wilfully and scandalously neglect to the duties and abdicate the position of rulers?

It is beyond our present purpose to enter upon the discussion of any Irish 'grievance,' beyond that with which we have been concerned. But we cannot refrain from noticing what seems to us a very alarming phenomenon, viz., the helplessness lately exhibited by the English press in dealing with the Irish 'difficulty.' Mr. Bright's visit to Dublin elicited comments from almost every newspaper. By the great majority, the remedies he proposed were condemned or laughed at. But none of the journals which wrote in this strain could propose any remedies of their own. Content with the present state of matters they could not affect; and yet there was in no quarter even a suggestion tending towards improvement. The land question was disposed of by the statement that the law which the Irish dislike is the same as that which is found to answer in England—the necessary conclusion of course being that it is the best of all possible laws; the Church grievance was set aside by being called 'sentimental.' We confess to thinking this a most ineffectual way of touching a vital and increasing mischief. It is, indeed, a dismal sign of the times that such arguments should be generally put forward—seemingly without any sense of their unworthiness. And while we are arguing thus foolishly and thus dishonestly, the aspect of affairs is growing more and more gloomy. The present discontent in Ireland we believe to be far more deep and wide-spread than is dreamt of by the majority of Englishmen; and did we feel that nothing was possible to us but this helpless acquiescence, we should look with great alarm on the future of the Empire. But we are thankful to believe that something very different is yet possible to us. We cannot err in beginning with the Irish Establishment. If we can defend that Church on honest grounds, well and good; but if we cannot uphold it as a just thing, should we go on in the commission of injustice, because we flatter ourselves—it may be quite falsely—that our wrong-doing bears no fruit, that our sin has not found us out? Let us, in the name of common honesty, put away from us such miserable devices, and learn, 'because right is right, to follow right.' It may be that we shall have our reward. It may be that the removal of 'sentimental' grievances may not be wholly without effect on a sentimental nation; at all events, we shall have done our duty.

ART. IV.—1. *Historia Diplomatica Friderici Secundi*, etc. Collegit, etc., J. L. A. HUILLARD-BRÉHOLLES, auspiciis et sumptibus H. DE ALBERTIS DE LUYNES. Préface et Introduction. Paris: H. Plon, 1859.

2. *History of Frederick the Second, Emperor of the Romans.* By T. L. KINGTON [BLAIR-OLIPHANT], M.A. Cambridge and London: Macmillan, 1862.

3. *Vie et Correspondance de Pierre de la Vigne, Ministre de l'Empereur Frédéric II., etc.* Par A. HUILLARD-BRÉHOLLES. Paris: H. Plon, 1866.

'STUPOR mundi Fredericus'—Frederick the Wonder of the World—is the name by which the English historian Matthew Paris more than once speaks of the Emperor who drew on him the eyes of all men during the greater part of the former half of the thirteenth century, and whose name has ever since lived in history as that of the most remarkable man in a most remarkable age. We do not say the greatest, still less the best, man of his time; but, as Matthew Paris calls him, the most wonderful man; the man whose character and actions shone out most distinctively, the man whose personality was most marked; the man, in short, who was in all things the most unlike to all the other men who were about him. It is probable that there never lived a human being endowed with greater natural gifts, or whose natural gifts were, according to the means afforded him by his age, more sedulously cultivated, than the last Emperor of the House of Swabia. There seems to be no aspect of human nature which was not developed to the highest degree in his person. In versatility of gifts, in what we may call manysidedness of character, he appears as a sort of mediæval Alcibiades, while he was undoubtedly far removed from Alcibiades' utter lack of principle or steadiness of any kind. Warrior, statesman, lawgiver, scholar, there was nothing in the compass of the political or intellectual world of his age which he failed to grasp. In an age of change, when, in every corner of Europe and civilized Asia, old kingdoms, nations, systems, were falling and new ones rising, Frederick was emphatically the man of change, the author of things new and unheard of—he was 'stupor mundi et immutator mirabilis.' A suspected heretic, a suspected Mahometan, he was the object of all sorts of absurd and self-contradictory charges; but the charges mark real features in the character of the man. He was something unlike any other Emperor or any other man; whatever professions of orthodoxy he might make, men felt in-

stinctively that his belief and his practice were not the same as the belief and the practice of other Christian men. There can be no doubt that he had quite emancipated his mind from the trammels of his own time, and that he had theories and designs which, to most of his contemporaries, would have seemed monstrous, unintelligible, impossible. Frederick in short was, in some obvious respects, a man of the stamp of those who influence their own age and the ages which come after them, the men who, if their lot is cast in one walk, found sects, and if it is cast in another, found empires. Of all men, Frederick the Second might have been expected to be the founder of something, the beginner of some new era, political or intellectual. He was a man to whom some great institution might well have looked back as its creator, to whom some large body of men, some sect or party or nation, might well have looked back as their prophet or founder or deliverer. But one of the most gifted of the sons of men has left behind him no memory of this kind, while men whose gifts cannot bear a comparison with his are reverenced as founders by grateful nations, churches, political and philosophical parties. Frederick in fact founded nothing, and sowed the seeds of the destruction of many things. His great charters to the spiritual and temporal princes of Germany dealt the death-blow to the Imperial power, while he, to say the least, looked coldly on the rising power of the cities and on those commercial Leagues which were the best element of German political life in his time. In fact, in whatever aspect we look at Frederick the Second, we find him, not the first, but the last, of every series to which he belongs. An English writer, two hundred years after his time, had the penetration to see that he was really the last Emperor.[1] He was the last prince in whose style the Imperial titles do not seem a mockery; he was the last under whose rule the three Imperial kingdoms retained any practical connexion with one another and with the ancient capital of all. Frederick, who sent his trophies to Rome to be guarded by his own subjects in his own city, was a Roman Cæsar in a sense in which no other Emperor was after him. And he was not only the last Emperor of the whole Empire; he might almost be called the last King of its several Kingdoms. After his time Burgundy vanishes as a kingdom; there is hardly an event to remind us of its existence except the fancy of Charles the Fourth, of all possible Emperors, to go and take the Burgundian crown at Arles. Italy too, after Frederick, vanishes as a kingdom; any later exercise of the royal authority in Italy was some-

[1] Capgrave, in his Chronicle, dates by Emperors down to Frederick, and then adds: 'Fro this tyme forward oure annotacion schal be aftir the regne of the Kyngis of Ynglond; *for the Empire, in maner, sesed here.*'

thing which came and went wholly by fits and starts. Later Emperors were crowned at Milan, but none after Frederick was King of Italy in the same real and effective sense that he was. Germany did not utterly vanish, or utterly split in pieces, like the sister kingdoms; but after Frederick came the Great Interregnum, and, after the Great Interregnum, the royal power in Germany never was what it had been before. In his hereditary kingdom of Sicily he was not absolutely the last of his dynasty, for his son Manfred ruled prosperously and gloriously for some years after his death. But it is none the less clear that from Frederick's time the Sicilian kingdom was doomed; it was marked out to be, what it has been ever since, divided, reunited, divided again, tossed to and fro between one foreign sovereign and another. Still more conspicuously than all was Frederick the last Christian King of Jerusalem, the last baptized man who really ruled the Holy Land or wore a crown in the Holy City. And yet, strangely enough, it was at Jerusalem, if anywhere, that Frederick might claim in some measure the honours of a founder. If he was the last more than nominal King of Jerusalem, he was also, after a considerable interval, the first; he recovered the kingdom by his own address, and, if he lost it, its loss was, of all the misfortunes of his reign, that which could be with the least justice attributed to him as a fault. In the world of elegant letters Frederick has indeed some claim to be looked on as the founder of that modern Italian language and literature which first assumed a distinctive shape at his Sicilian court. But in the wider field of political history, Frederick appears nowhere as a creator, but rather everywhere as an involuntary destroyer. He is in everything the last of his own class, and he is not the last in the same sense as princes who perish along with their realms in domestic revolutions or on the field of battle. If we call him the last Emperor of the West, it is in quite another sense from that in which Constantine Palaiologos was the last Emperor of the East. Under Frederick, the Empire and everything connected with it seems to crumble and decay while preserving its external splendour. As soon as its brilliant possessor is gone, it at once collapses. It is a significant fact that a prince, perhaps in mere genius, in mere accomplishments, the greatest who ever wore a crown, who held the greatest place on earth, and was concerned during a long reign in some of the greatest transactions of one of the greatest ages, seems never, even from his own flatterers, to have received that appellation of Great which has been so lavishly bestowed on far smaller men. The world instinctively felt that Frederick, the natural peer of Alexander, of Constantine, and of Charles, had left behind him no such creation as they left,

and had not influenced the world as they had influenced it. He was 'stupor mundi et immutator mirabilis,' but the name of 'Fredericus Magnus' was reserved for a prince of quite another age and house, who, whatever else we say of him, at least showed that he had learned the art of Themistocles, and knew how to change a small state into a great one.

Many causes combined to produce this singular result, that a man of the extraordinary genius of Frederick, and possessed of every advantage of birth, office, and opportunity, should have had so little direct effect upon the world. It is not enough to attribute his failure to the many and great faults of his moral character. Doubtless they formed one cause among others. But a man who influences future ages is not necessarily a good man. Few men have ever had a more direct influence on the future history of the world than Lucius Cornelius Sulla. The man who crushed Rome's last rival, who saved Rome in her last hour of peril, who made her indisputably and permanently the head of Italy, did a work almost greater than the work of Cæsar. Yet the name of Sulla is one at which we almost instinctively shudder. So the faults and crimes of Frederick, his irreligion, his private licentiousness, his barbarous cruelty, would not of themselves be enough to hinder him from leaving his stamp upon his age in the way that other ages have been marked by the influence of men certainly not worse than he. Still, it seems that, to exercise any great and lasting influence on the world, a man must be, if not virtuous, at least capable of objects and efforts which have something in common with virtue. Sulla stuck at no crime which would serve his country or his party, but it was for his country and his party, not for purely selfish ends, that he laboured and that he sinned. Thorough devotion to any cause has in it something of self-sacrifice, something which, if not purely virtuous, is not without an element akin to virtue. Very bad men have achieved very great works, but they have commonly achieved them by virtue of those features in their character which made the nearest approach to goodness. The weak side in the brilliant career of Frederick is one which seems to have been partly inherent in his character, and partly the result of the circumstances in which he found himself. Capable of every part, and, in fact, playing every part by turns, he had no single definite object, pursued honestly and steadfastly, throughout his whole life. With all his powers, with all his brilliancy, his course throughout life seems to have been in a manner determined for him by others. He was ever drifting into wars, into schemes of policy, which seem to be hardly ever of his own choosing. He was the mightiest and most dangerous adversary that the Papacy

ever had. But he does not seem to have withstood the Papacy from any personal choice, or as the voluntary champion of any opposing principle. He became the enemy of the Papacy, he planned schemes which involved the utter overthrow of the Papacy, yet he did so simply because he found that no Pope would ever let him alone. It was perhaps an unerring instinct which hindered any Pope from ever letting him alone. Frederick, left alone to act according to his own schemes and inclinations, might very likely have done the Papacy more real mischief than Frederick provoked to open enmity. Still, as a matter of fact, his quarrels with the Popes were not of his own seeking; a sort of inevitable destiny led him into them, whether he wished for them or not. Again, the most really successful feature in Frederick's career, his acquisition of Jerusalem, is not only a mere episode in his life, but it was something that was absolutely forced upon him against his will. The most successful of Crusaders since Godfrey is the most utterly unlike any other Crusader. With other Crusaders the Holy War was, in some cases, the main business of their lives; in all cases it was something seriously undertaken as a matter either of policy or of religious duty. But the Crusade of the man who actually did recover the Holy City is simply a grotesque episode in his life. Excommunicated for not going, excommunicated again for going, excommunicated again for coming back, threatened on every side, he still went, and he succeeded. What others had failed to win by arms he contrived to win by address, and his success simply became the ground of fresh accusations against him. For years the cry for the recovery of Jerusalem had been resounding through Christendom; at last Jerusalem was recovered, and its recoverer was at once cursed for accomplishing the most fervent wishes of so many thousands of the faithful. The excommunicated King, whom no churchman would crown, whose name was hardly allowed to be uttered in his own army, kept his dominions in spite of all opposition. He was hindered from the further consolidation and extension of his eastern kingdom only by a storm stirred up in his hereditary states by those who were most bound to show towards him something more than common international honesty. Whatever were the feelings and circumstances under which he had acted, Frederick was in fact the triumphant champion of Christendom, and his reward was fresh denunciations on the part of the spiritual chief of Christendom. The elder Frederick, Philip of France, Richard of England, Saint Lewis, Edward the First, were Crusaders from piety, from policy, or from fashion; Frederick the Second was a Crusader simply because he could not help being one, and yet he did what they all failed to do. So again in his dealings with both the German and the Italian States, it is impos-

sible to set him down either as a consistent friend or a consistent enemy of the great political movements of the age. He issues charters of privileges to this or that commonwealth, he issues charters restraining the freedom of commonwealths in general, simply as suits the policy of the time. In his dealings with the Popes, perhaps in his dealings with the cities also, Frederick was certainly more sinned against than sinning. But a man whose genius and brilliancy and vigour shine out in every single action of his life, but in the general course of his actions no one ruling principle can be discerned, who is as it were tossed to and fro by circumstances and by the actions of others, is either very unfortunate in the position in which he finds himself, or else, with all his genius, he must lack some of the qualities without which genius is comparatively useless.

In the case of Frederick probably both causes were true. For a man to influence his age, he must in some sort belong to his age. He should be above it, before it, but he should not be foreign to it. He may condemn, he may try to change, the opinions and feelings of the men around him; but he must at least understand and sympathize with those opinions and feelings. But Frederick belongs to no age; intellectually he is above his own age, above every age; morally it can hardly be denied that he was below his age; but in nothing was he of his age. In many incidental details his career is a repetition of that of his grandfather. Like him he struggles against Popes, he struggles against a league of cities, he wears the Cross in warfare against the Infidel. But in character, in aim, in object, grandfather and grandson are the exact opposite to each other. Frederick Barbarossa was simply the model of the man, the German, the Emperor, of the twelfth century. All the faults and all the virtues of his age, his country, and his position received in him their fullest development. He was the ordinary man of his time, following the objects which an ordinary man of his time and in his position could not fail to follow. He exhibited the ordinary character of his time in its very noblest shape; but it was still only the ordinary character of his time. His whole career was simply typical of his age, and in no way personal to himself; every action and every event of his life was perfectly intelligible to every contemporary human being, friend or enemy. But his grandson, emphatically 'stupor mundi,' commanded the wonder, perhaps the admiration, of an age which could not understand him. He gathered indeed around him a small band of devoted adherents; but to the mass of his contemporaries he seemed like a being of another nature. He shared none of the feelings or prejudices of the time; alike in his intellectual greatness and in his moral abasement he had

nothing in common with the ordinary man of the thirteenth century. The world probably contained no man, unless it were some solitary thinker here and there, whose mind was so completely set free, alike for good and for evil, from the ordinary trammels of the time. He appeared in the eyes of his own age as the enemy of all that it was taught to hold sacred, the friend of all that it was taught to shrink from and wage war against. What Frederick's religious views really were is a problem hard indeed to solve; but to his own time he appeared as something far more than a merely political, or even than a doctrinal, opponent of the Papacy. Men were taught to believe that he was the enemy of the head of Christendom simply because he was the enemy of Christianity altogether. Again, the crimes and vices of Frederick were no greater than those of countless other princes; but there was no prince who trampled in the like sort upon all the moral notions of his own time. He contrived, by the circumstances of his vices, to outrage contemporary sentiment in a way in which his vices alone would not have outraged it. A man who thus showed no condescension to the feelings of his age, whether good or evil, could not directly influence that age. Some of his ideas and schemes may have been silently passed on to men of later times, in whose hands they were better able to bear fruit. He may have shaken old prejudices and old beliefs in a few minds thus; he may perhaps have been the fountain of a tradition which was powerfully to affect distant ages. In many things his ideas, his actions, forestalled events which were yet far remote. The events which he forestalled he may in this indirect and silent way have influenced. But direct influence on the world of his own age he had none. He may have undermined a stately edifice which was still to survive for ages; but he simply undermined. He left no traces of himself in the character of a founder; he left as few in the character of an open and avowed destroyer.

There was also another cause which, besides Frederick's personal character, may have tended to isolate him from his age and to hinder him from having that influence over it which we may say that his genius ought to have had. This was his utter want of nationality. The conscious idea of nationality had not indeed the same effect upon men's minds which it has in our own times. The political ideas and systems of the age ran counter to the principle of nationality in two ways. Nothing could be more opposed to any doctrine of nationality than those ideas which were the essence of the whole political creed of the time, the ideas of the Universal Empire and the Universal Church. On the other hand, the conception of the joint lordship of the world, vested in the successor of Peter and the suc-

cessor of Augustus, was hardly more opposed to the doctrine of nationality than was the form which was almost everywhere taken by the rising spirit of freedom. A movement towards national freedom was something exceptional; in most places it was the independence of a district, of a city, at most of a small union or districts or cities, for which men strove. A German or Italian commonwealth struggled for its own local independence; so far as was consistent with the practical enjoyment of that independence, it was ready to acknowledge the supremacy of the Emperor, Lord of the World. But of a strictly national patriotism for Germany or Italy men had very little idea indeed. These two apparently opposite tendencies, the tendency to merge nations in one universal dominion, and the tendency to divide nations into small principalities and commonwealths, were in truth closely connected. The tendency to division comes out most strongly in the kingdoms which were united to the Empire. Other countries showed a power of strictly national action, of acquiring liberties common to the whole nation, of legislating in the interest of the whole nation, almost in exact proportion to the degree in which they were placed beyond the reach of Imperial influences. Spain, Scandinavia, Britain, were the countries on which the Empire had least influence. Spain, Scandinavia, Britain, were therefore the countries in which we see the nearest approaches to true national life and consciousness. Still there is no doubt that, even within the Empire, national feelings did exercise a strong, though in a great measure an unconscious, influence. Local feelings exercised an influence still stronger. But there was no national or local feeling which could gather round Frederick the Second. There was no national or local cause of which he could be looked on as the champion. There was no nation, no province, no city, which could claim him as its own peculiar hero. Ruling over men of various races and languages, he could adapt himself to each of them in turn in a way in which few men before or after him could do. But there was none of the various races of his dominions, German, Burgundian, Italian, Norman, Greek, or Saracen, which could really claim him as bone of its bone, and flesh of its flesh. His parentage was half German, half Norman, his birthplace was Italian, the home of his choice was Sicilian, his tastes and habits were strongly suspected of being Saracenic. The representative of a kingly German house, he was himself, beyond all doubt, less German than anything else. He was Norman, Italian, almost anything rather than German; but he was far from being pure Norman or pure Italian. In this position, placed as it were above all ordinary local and national ties, he was, beyond every other prince who ever wore the Im-

perial diadem, the embodiment of the conception of an Emperor, Lord of the World. But an Emperor, Lord of the World, is placed too high to win the affections which attach them to rulers and leaders of lower degree. A King may command the love of his own Kingdom; a popular leader may command the love of his own city. But Cæsar, whose dominion is from the one sea to the other, and from the flood unto the world's end, must, in this respect as in others, pay the penalty of his greatness. Frederick was, in idea, beyond all men, the hero and champion of the Empire. But practically the championship of the Empire was found less truly effective in his hands than in the hands of men who were further from realizing the theoretical ideal. The Imperial power was more really vigorous in the hands of princes in whom the ideal championship of the Empire was united with the practical leadership of one of its component nations. Frederick Barbarossa, the true German King, the man in whom the German instinct at once realizes the noblest development of the German character, really did more for the greatness of the Empire than his descendant, whose ideal position was so far more truly Imperial. The men who influence their age, the men who leave a lasting memory behind them, are the men who are thoroughly identified with the actual or local life of some nation or city. Frederick Barbarossa was the hero of Germany, but his grandson, the hero of the Empire, was the hero of none of its component parts. The memory of the grandfather still lives in the hearts of a people, some of whom perhaps even now look for his personal return. The memory of the grandson has everywhere passed away from popular recollection; the Wonder of the World remains to be the wonder of scholars and historians alone.

In this last respect the memory of Frederick the Second has certainly nothing to complain of. Few princes have ever had such a monument raised to them as has been raised to the memory of the last Swabian Emperor by the munificence of the Duke of Luynes and the learning and industry of M. Huillard-Bréholles. Here, in a series of noble quartos, are all the documents of a reign most fertile in documents, ushered in by a volume which, except in not assuming a strictly narrative form, is essentially a complete history of Frederick's reign. M. Huillard-Bréholles seems literally to have let nothing escape him. He discusses at length everything which in any way concerns his hero, from the examination of schemes which sound very like the institution of a new religion down to the minutest particulars of form in the wording, dating, and spelling of the Emperor's official acts. We never saw a book which is more thoroughly exhaustive of the subject with which it deals.

It is not a history, merely because the form of an Introduction or Preface seems to have prescribed to M. Bréholles the necessity of giving us, instead of a single regular narrative, a series of distinct narrative discussions of each of the almost countless aspects in which the reign of Frederick can be looked at. M. Bréholles has also followed up his great work by a monograph of the life and aims of one whose history is inseparably bound together with that of Frederick, his great and unfortunate minister Peter de Vineâ. In this he examines at full length a subject to which we shall again return, and which is perhaps the most interesting of all which the history of Frederick presents, namely, the relation of the free-thinking and reforming Emperor to the received religion of this age. On this point we cannot unreservedly pledge ourselves to all the details of M. Bréholles' conclusions; but they are at least highly ingenious, and the contemporary evidence on which he grounds them is most singular and interesting, and deserves most attentive study. Altogether we can have no hesitation in placing M. Bréholles' investigation of the reign of Frederick the Second among the most important contributions which our age has made to historical learning.

Nor has the character and history of Frederick failed to attract notice among scholars in our own country. His career supplies materials for one of the most brilliant parts of Dean Milman's History of Latin Christianity; there is no part of his great work which is more palpably a labour of love. More recently has appeared the History of Frederick by Mr. Kington-Oliphant, the production of a young writer, and which shows want of due preparation in some of the introductory portions, but which also shows real research and real vigour as the author approaches his main subject, the life of Frederick himself. Mr. Oliphant is confessedly a disciple of M. Bréholles, and his volumes, as supplying that direct and continuous narrative which M. Bréholles' plan did not allow of, may be taken as a companion-piece to the great work of his master.

The reign of Frederick, like that of his predecessor Henry the Fourth, was nearly co-extensive with his life. His history began while he was in his cradle. Like Henry the Fourth, after filling the first place in men's minds for a long series of years, he died at no very advanced period of life. Frederick, born in 1194, died in 1250, at the age of fifty-six. Henry at the time of his death was a year younger. Yet it marks a difference between the two men that historians seem involuntarily, in defiance of chronology, to think and speak of Henry in his later years as quite an aged man. No one ever speaks in this way of Frederick. The Wonder of the World seems endowed

with a sort of undying youth, and, after all the great events and revolutions of his reign, we are at last surprised to find that we have passed over so many years as we really have. Frederick was a King almost from his birth. The son of the Emperor Henry the Sixth and of Constance the heiress of Sicily, he was born while his father was in his full career of success and cruelty. His very birth gave occasion to mythical tales. The comparatively advanced age of his mother, which however has been greatly exaggerated, gave occasion to rumours of opposite kinds. His enemies gave out that he was not really of Imperial birth, and that the childless Empress had palmed off a supposititious child on her husband. His admirers hailed in him a birth wonderful, if not miraculous, and placed the conception of Constance alongside of the conceptions of the mothers of Isaac, of Samuel, and of John the Baptist. Elected King of the Romans in his infancy, his father's death left him in his third year his successor in the Sicilian kingdom, and his mother's death in the next year left an orphan boy as the heir alike of the Hohenstaufen Emperors and of the Norman Kings. His election as King of the Romans seems to have been utterly forgotten; after the death of his father, the Crown was disputed by the double election of Otto of Saxony and of Frederick's own uncle Philip. The child in Sicily was not thought of till the assassination of Philip, just when fortune seemed to have finally decided for him; till Otto, reaping the advantage of a crime of which he was guiltless, had been enabled to secure both the Kingdom and the Empire, and till he had fallen into disgrace with the Pontiff by whose favour he had at first been supported. Meanwhile the Sicilian kingdom had been torn by rebellions and devastated by mercenary captains. The land had at last been restored to some measure of peace, and the young King to some measure of authority, by the intervention of the over-lord Pope Innocent. A husband at fifteen, a father at eighteen, Frederick was, almost simultaneously with the birth of his first son, Henry the future King and rebel, called to the German Crown by the party which was discontented with Otto, now under the ban of the Church. Frederick, destined to be the bitterest enemy of the Roman See, made his first appearance on German soil as its special nursling, called to royalty and Empire under the auspices of the greatest of the Roman Pontiffs. He came also, there seems little reason to doubt, under patronage of a less honourable kind. The long disputes between England and France had already begun, and, by a strange anticipation of far later times, they had already begun to be carried on within the boundaries of the Empire. Otto, the son of an English mother, was supported by the money and the arms of his uncle John of

England, while the heir of the Hohenstaufen partly owed his advancement to the influence and the gold of Philip of France. In 1210 Frederick was elected King; two years later, Otto, in Mr. Oliphant's words, 'rushed on his doom.' At Bouvines, a name hardly to be written without an unpleasant feeling by any man of Teutonic blood and speech, the King of the French overthrew the Saxon Emperor and his English and Flemish allies. The power of Otto, already crumbling away, was now utterly broken. In 1215, while John was quailing before his triumphant Barons, Frederick, the rival of his nephew, received the royal crown, and assumed the cross. Three years later the death of Otto removed all traces of opposition to his claims, an event which, by a singular coincidence, was nearly contemporaneous with the birth of one destined to be himself a King, and the beginner of a new stage in the history of the Empire, the famous Rudolf of Hapsburg. In 1220 Frederick's son Henry, then only eight years old, was elected King, a step which seems irregular, as his father was not yet crowned Emperor. But in the course of the same year Frederick received the Imperial diadem at the hands of Pope Honorius. His coronation was an event deserving of special record in the Roman annals, as one of the very few times when an Emperor received his Crown without bloodshed or disturbance, amid the loyal acclamations of the Roman people. Possibly some conscious or unconscious feeling of national kindred spoke in favour of an Emperor born within the borders of Italy, and under whose rule it might seem that Germany and not Italy was likely to be the secondary and dependent realm. In truth, in that same year, before leaving his Northern kingdom, Frederick had, seemingly as the price of the election of his son, put the seal to the destruction of the royal power in Germany. The charter which he granted in that year to the German Princes is one of the marked stages of the long process which changed the Kingdom of Charles and Otto and Henry into the lax Confederation which has so lately fallen in pieces before our eyes.

Frederick was still, to all appearance, a dutiful son of the Church; but there were already signs that a storm was brewing. The union between a Pope and a Hohenstaufen Emperor was something which in its own nature could not be lasting. The magnificent theory which looked on the spiritual and temporal chiefs of Rome as the co-equal rulers of the Church and the world always gave way at the slightest strain. Even before his Imperial Coronation, Frederick had fallen under the displeasure of Honorius; he had received rebukes and had had to make excuses. As usual, the two swords were always clashing; the King of Sicily was charged with meddling with ecclesiastical fiefs, and with the freedom of ecclesiastical elections. But the great point

was the Crusade. Frederick had become a Crusader at the time of his assumption of the German Crown; but no Crusade had he as yet waged. Damietta had been won, and Damietta was soon after lost again, without the temporal head of Christendom striking a blow to win or to defend it. The position thus lightly dealt with was held to be the very key of the Holy Land. In the eyes of a Pope, such neglect was a wicked forsaking of the first of duties. It might perhaps have appeared in the same light in the eyes of an ideal Emperor. But the hereditary King of Sicily, the elected King of Germany, Italy, and Burgundy, found occupation enough in the lower duties of ordinary royalty. In all his kingdoms there were matters calling for his attention. In his own hereditary realm he had a work to do which he might fairly plead as an excuse for not engaging in warfare beyond the sea. He had no need to go and seek for Saracen enemies in distant lands, while the Saracens of his own island were in open revolt. He brought into subjection both the turbulent Infidels and the no less turbulent Norman nobles, and made Sicily the model of a civilized and legal despotism, framed after the pattern of the best days of the Eastern Empire. The wild Saracens of the mountains were partly constrained to adopt a more peaceful life, partly transferred to a spot where, instead of restless rebels, they became the surest defence of his throne. He planted them in the city of Lucera in Apulia, where, isolated in a surrounding Christian country, they dwelt as his Housecarles or his Janissaries, bound by the single tie of personal loyalty, soldiers who could always be trusted, for over them Popes and monks had no influence. Besides this work in his native kingdom, a work alone enough to tax all the energies of an ordinary mortal, he had other work to do in all his Imperial realms. Not the least interesting among the notices of this part of his reign are those which concern the states along his western frontier. On the one hand France was already encroaching; on the other hand a movement was beginning which, had it prospered, might have placed an unbroken line of independent states between the great rival powers. The duty which Switzerland and Belgium, at too great an interval from one another, had still to discharge, fell, in the thirteenth century, to the lot of a whole crowd of rising commonwealths. From the mouths of the Rhine to the mouths of the Rhone, republics, worthy sisters of the republics of Italy and Northern Germany, were springing up through the whole length of ancient Lotharingia and Burgundy. It is sad to see Frederick everywhere interfering to check this new birth of freedom. Everywhere the local Count or Bishop was encouraged to subdue the presumptuous rebels of the cities. Take two instances from

cities widely apart in geographical position. Massalia, the old Ionian commonwealth, the city which had braved the might of Cæsar and which was before many years to brave the might of Charles of Anjou, had begun her second and brief career of freedom. In the eyes of Frederick the citizens were mere rebels against their Bishop, and the Count of Provence was bidden to bring them back to their due obedience. So, at almost the other end of the Empire, the citizens of Cambray failed to pay due submission to the Imperial commands. But here a more dangerous influence was at work. The Emperor was still on good terms with the King of the French; he had lately concluded a treaty with him, binding himself, among other things, to enter into no alliance with England. But the instinctive tendencies of the Parisian monarchy were then, as ever, too strong for mere written engagements. France was intriguing with the citizens of Cambray, and the Emperor had to call upon King Lewis to cease from any intermeddling with his disaffected subjects.

We have brought out these points, though of no special importance in the life of Frederick, because they at once illustrate the varied relations of a mediæval Emperor to all kinds of rulers and communities, great and small, and because they specially illustrate the reality of power which the Emperor still retained both in his Burgundian kingdom, and in other portions of the Empire which have since been swallowed up by the encroachments of France. Neither of our authors brings out this point as it should be brought out. M. Bréholles is far too learned to be ignorant of, far too candid to suppress, any one fact in his history. Still he is a Frenchman, and we can hardly expect him to enter a formal protest against the most popular of all French delusions. Mr. Oliphant knows his facts, but he does not fully realize them. It is with a kind of surprise that he finds 'that many provinces, now included within the boundaries of France, then looked for direction to Hagenau or Palermo, not to Paris.' To be sure Mr. Bryce's tabular view of the Ten Burgundies had not then been drawn up.

At last we reach Frederick's Crusade, perhaps rather to be called his progress to the East. The marriage of Frederick with Yolande of Brienne put him into altogether a new relation to the Holy Land and all that pertained to it. His journey to Jerusalem was now not that of a private adventurer or pilgrim, not that of an Emperor acting as the common head of Christendom, but that of a King going to take possession of one of his own kingdoms, to receive yet another crown in another of his capitals. And in truth Frederick, when he had once set out, had less difficulty in winning his way to the crown of

Jerusalem, than some of his predecessors in the Empire had had in winning their way to the crown of Rome. Everything seemed against him; the Papal throne had a new and very different occupant; to the mild Honorius had succeeded the stern and unbending Gregory. Frederick's second Empress was already dead, and with her, it might be argued, he had lost his right to a kingdom which he could claim only through her. He himself was excommunicated at every step; if he went, if he stayed, the ban was equally launched against him for going and for staying. Yet he went; on his way he successfully established his Imperial rights over the Frank King of Cyprus, a rival claimant for the crown of Jerusalem. Without striking a blow, by dexterous diplomacy, by taking advantage of the divided and tottering state of the Mahometan powers, he gained the main object for which Christendom had striven in vain for forty years. A Christian King again reigned in the Holy City, and the sepulchre of Christ was again in the hands of His worshippers. It was a strange position when the excommunicated King, in whose presence any religious office was forbidden, placed on his own head the crown of the Holy Land in the church of the Holy Sepulchre. It might almost seem as if it was in this strange moment of trial that Frederick's faith finally gave way. The suspicion of Mahometanism which attached to him is of course, in its literal sense, utterly absurd; but it is worthy of notice that it was not confined to Christian imaginations. The conduct of Frederick at Jerusalem impressed more than one Mahometan writer with the belief that, if the Emperor was not an actual proselyte to Islam, he was at least not sound in the faith which he outwardly professed. It must be remembered that the toleration of Mahometan worship within its walls was one of the conditions on which he obtained possession of the Holy City. A stipulation like this might well arouse suspicions of Frederick's Christian orthodoxy in the minds of Christians and Mussulmans alike. To modern ideas his conduct appears simply just and reasonable; setting aside any theories of religious toleration, the view of a modern statesman would be that Frederick preferred, and wisely preferred, instead of putting everything to the hazard of the sword, to win his main object by treaty, and to yield on some minor points. The essence of a treaty between two powers treating on equal terms is that each should abate somewhat of that which it holds to be the full measure of its rights. Few will now condemn Frederick for choosing to accept such large concessions by treaty rather than to trust everything to the chances of war. Had he done otherwise, he might probably have had to return to Europe after wasting his forces in a struggle

as bootless as those of most of the Crusaders who had gone before him. And it seems that, even in his own age, a large amount of public European feeling went with him. His treatment at the hands of the Pope and the Papal party was so manifestly unjust as to arouse a deep feeling in his favour in all parts of Christendom. In Italy, in Germany, in England, the chief writers of the time all side with Frederick against Gregory. Allowance was made for his position; he had done what he could; had he not laboured under an unrighteous excommunication, had he not been thwarted and betrayed by the clergy and the military orders, he would have done far more. Still the indignation of the extreme ecclesiastical party against Frederick was, from their own point of view, neither unnatural nor unreasonable. In the eyes of some zealots any treaty with the Infidels was in itself unlawful; even without going this length, a treaty which, though it secured the Holy Sepulchre to the Christian, left the 'Temple of the Lord' to the Mahometan, could not fail to offend some of the most deep-seated feelings of the age. Whatever might be Frederick's own faith, he at least had not the orthodox hatred for men of another faith. Various incidental actions and expressions of the Emperor's during his stay at Jerusalem impressed the Mahometans themselves with the idea that he at least put both religions pretty much upon a level. We must remember that his toleration of Mahometanism would be a thing which few Mahometans would appreciate, and which would of itself raise suspicions in most Oriental minds. A man who could act with justice and moderation towards men of their law would seem to be no really firm believer in the law which he himself professed. But this could not have been all; the impression of Frederick's lack of orthodoxy, and of his special tendency towards Mahometanism, was too deeply fixed in the minds of men of both creeds to have rested on nothing more than an inference of this kind. And it is perfectly credible in itself. A King of Sicily, who from his childhood had had to do with Saracens in his own kingdom both in peace and in war, who, if he had sometimes had to deal with them as enemies, had also found that they could be converted into his bravest and most loyal soldiers, could not possibly hate the unbelievers with the hatred which in the breast of a King of England or France might be a perfectly honest passion. Then, just at the moment when he was naturally stung to the heart by his ill-treatment at the hands of the head of his own faith, when he was denied communion in Christian rites, and when the ministers and defenders of the Christian Church shrunk from him as from one worse than an infidel—just at such a moment as this, he came across a fuller and more splendid development of the

Mahometan law among the independent Mahometan powers of the East. There was much in the aspect of Mahometan society to attract him. The absolute authority of the Mahometan sovereigns was congenial to his political notions. The art and science, such as it was, of the more civilized Mahometan nations appealed to his intellectual cravings. The license allowed by the Mahometan law fell in no less powerfully with the dictates of his voluptuous temperament. That Frederick ever, strictly speaking, became a Mahometan is of course an absurd fable. It is not even necessary to believe that he ever formally threw aside all faith in dogmas of Christianity as understood in his own age. But that Frederick, with all his professions of orthodoxy, was at least a free-thinker, that he indulged in speculations which the orthodoxy of his age condemned, it is hardly possible to doubt. That he aimed at the widest changes in the external fabric of the Christian Church, in the relations between the spiritual and the temporal, between the Papal and the Imperial, powers, there can be no doubt at all. And, if there was any one moment of change in Frederick's mind, any one moment when doubt, if not disbelief, obtained the supremacy over his intellect, no moment is so likely as that in which he saw Christianity and Islam ranged side by side in the Holy City of both religions, and when, as regarded himself, it could not have been Christianity which appeared in the more attractive light.

We had hoped to give a sketch, if only a short one, of the main events in Frederick's later career, his reconciliation with Gregory, his season of comparative tranquillity in his Sicilian realm, his schemes of government and legislation, his second and final rupture with Gregory, his last struggle with Innocent, his last excommunication and deposition, and the political consequences of that bold stretch of Papal authority in the appearance of rival Kings in Germany and the general weakening of the Imperial power throughout the Empire. But the reflections to which we have been led by the consideration of Frederick's position at Jerusalem lead us at once to questions which may well occupy the remainder of this article. On the question of Frederick's religion Mr. Oliphant hardly enlarges at all; Dean Milman sums up his own view in a few remarkable words:—

'Frederick's, in my judgment, was neither scornful and godless infidelity, nor certainly a more advanced and enlightened Christianity, yearning after holiness and purity not then attainable. It was the shattered, dubious, at times trembling faith, at times desperately reckless incredulity, of a man under the burthen of an undeserved excommunication, of which he could not but discern the injustice, but could not quite shake off the terrors; of a man whom a better age of Christianity might not have made religious; whom his own made irreligious.'

But M. Bréholles, both in his general Introduction and in his special monograph of Peter de Vineâ, goes very much deeper into the question. He gathers together a great number of passages from contemporary writers, which, in his judgment, are evidence that Frederick, in the eyes of a small knot of enthusiastic admirers, was looked on as something like the Apostle, or rather the Messiah, of a new religion. Such a notion is certainly much less improbable in itself than, with our modern notions, it seems to us. Everything was then looked at from a religious point of view. Political partisanship took the form of religious worship; the man who died for his country or for his party was canonized as a martyr, and miracles were deemed to be wrought at his grave. The famous case of Simon of Montfort, a younger contemporary of Frederick, is perhaps the strongest of any. Simon died under a Papal excommunication, but no excommunication could hinder the English people, and the mass of the English clergy among them, from looking on the martyred Earl as the patron of the English nation, whose relics possessed healing virtues on earth, and whose intercession could not fail to be availing in heaven. The age of Frederick moreover was eminently an age of religious movement. The new monastic orders on the one hand, the countless heresies on the other, sprang out of the same source, and sometimes mingled together in a strange way. The heretic who was sent to the stake and the Dominican Friar who sent him thither, were, each in his own way, witnesses to a general feeling of dissatisfaction with the existing state of the Church, to a general striving after something new, in dogma, in discipline, or in practice, according to the disposition of each particular reformer. Strange writings, setting forth strange doctrines, were afloat before the days of Frederick and remained afloat after his days. The whole of the inner circle of the Franciscan Order, the Order of personal self-sacrifice and mystic devotion, seemed fast sweeping into something more than heresy. Even the pillars of orthodoxy, the unrelenting avengers of every deviation from the narrow path, the stern, practical, relentless Dominicans, did not escape at least the suspicion of being touched by the same contagion. That contagion was indeed more than heresy; it was the preaching of a new religion. To the believers in the 'Everlasting Gospel,' Christianity itself seemed, just as it seems to a Mahometan, to be a mere imperfect and temporary dispensation, a mere preparation for something better which was to come. The reign of the Father had passed away with its revelation, the Mosaic Law; the reign of the Son was passing away with its revelation, the Christian Gospel; the reign of the Holy Ghost was approaching, with its own special revelation, more perfect than all. The

age was one which could hardly bear to look upon anything in a purely secular way. Even when the spiritual and temporal powers came into conflict, the conflict was of a somewhat different kind from similar conflicts in our own day. The Ghibelin doctrine was far from being a mere assertion of the superiority of a power confessedly of the earth, earthy, over a power confessedly of higher origin. The Empire had its devotees as well as the Popedom. In the ideas of both parties a Vicar of Christ was a necessity; the only question was whether the true Vicar of Christ was to be looked for in the Roman Pontiff or in the Roman Cæsar. To the enthusiastic votaries of the Empire, the Emperor seemed as truly a direct representative of divinity as literally a power reigning by divine right, as ever the Pope could seem in the eyes of the strongest assertor of ecclesiastical claims. It has been the growth of independent nations and churches which has, more than anything else, dealt the death-blow to both theories. But in Frederick's time no man could be within the limits of the Empire a vehement opponent of the temporal or spiritual claims of the Pope, without in some measure asserting a spiritual as well as a temporal power in the Emperor. This deification of the Imperial power attained perhaps its fullest and most systematic development among the writers who undertook the defence of Lewis of Bavaria; but there is no doubt that ideas of the same kind were already busily at work in the days of Frederick. So far as Frederick was an opponent of the Papal power, so far as he contemplated any transfer of power from the Papacy to the Empire, so far in short as he appeared at all in the character of an ecclesiastical reformer, he could only do so, if not in his own eyes, at least in those of his admirers, by transferring to himself, as Roman Emperor, some portion of that official sanctity of which he proposed to deprive the Roman Pontiff.

Now, perplexing as is the question of Frederick's personal belief, his external position, as Emperor and King, towards ecclesiastical questions, is intelligible enough. He always in his own person professed strict orthodoxy of dogma, and in his legislation he strictly enforced such orthodoxy within the pale of the Christian Church. To the Jew and the Mahometan he gave complete toleration; the Christian heretic found in him a persecutor as cruel as the most enthusiastic Dominican turned loose upon the victims of the elder Montfort. There is no necessary inconsistency in such a position; it is, in fact, one which was recognised by the general treatment of the Jews throughout the middle ages. The Jew or the Mahometan is something altogether external to the Church. He is a foreign enemy, not an inborn rebel; he is one against whom the Church may rightfully wage

war, but not one whom she can claim to bring before her internal judgment-seat. But the heretic is a home-bred traitor; he is not a foreign enemy of the Church, but a native rebel against her; he is therefore an object, not of warfare, but of judicial punishment. A Christian sovereign, then, according to the mediæval theory, is in no way bound to molest Jews or Mahometans simply as Jews or Mahometans; he must secure Christians from any molestation from them, from any proselytism to their creed; but the Jew or the Mahometan is not amenable to punishment simply on the ground of his misbelief. But the heretic is so amenable. The Jew has never been under the allegiance of the Church; he is a foreigner, not to be injured unless he commits some national wrong; the heretic has cast off his allegiance to the Church; he is a spiritual rebel to be chastised as unsparingly as the temporal rebel. This principle was acted upon throughout the middle ages. The Jew was often exposed to unfavourable legislation; he was still more commonly visited with illegal or extra-legal oppression; but a Jew, simply as a Jew, was never held to be liable to the penalties of heresy. What is remarkable in Frederick's legislation is the real and effective nature of the toleration which he secures to Jews and Mahometans, combined with the fact that such a man as Frederick should appear as a religious persecutor under any circumstances. If he really handed over heretics to the flames in cold blood, simply to preserve for himself a character for orthodoxy which he did not deserve, it is hardly possible to conceive a greater measure of guilt. And the guilt is hardly less, if he employed the popular prejudice against heresy to destroy political enemies under the garb of heretics. It is possible, however, to explain Frederick's persecutions without attributing to him such detestable wickedness as this. Though a legislator may be personally a free-thinker, or even a confirmed unbeliever, it does not at all follow that he thinks it either possible or desirable to abolish the public establishment of Christianity in his dominions. And, in the view of most times and places, the public establishment of any religious system has involved the legal punishment of those who separate from it. Frederick might thus hold it to be a matter of public order and public justice to chastise men for publicly rebelling against a system in which he had himself lost all personal faith. Persecution of this sort is far more odious than the persecutions of the honest fanatic, who burns a few men in this world to save many from being burned in the next. Still it does not reach the same measure of guilt as the detestable hypocrisy which at first seems to be the obvious explanation of Frederick's conduct in this respect.

Frederick, then, professed strict orthodoxy of dogma, and persecuted those who departed from such orthodoxy. But it is plain that, as to the relations between the spiritual and temporal powers, he was not orthodox in the Papal sense. It was hardly possible that an Emperor should be so. In the ideal theory of the two powers, the Pope and the Emperor are strictly co-equal; the authority of each is alike divine within its own range. But rigidly to define the range of each is so hard a matter, that this ideal theory could hardly fail to remain an ideal theory. The practical question always was whether the Emperor should be subject to the Pope or the Pope subject to the Emperor. On this question we cannot doubt that Frederick had a very decided judgment indeed. With such an intellect as his, in such a position as his, the subjection of the Pope to the Emperor would be an established principle from the first moment that he was capable of speculating about such matters at all. Every event of his life, every excommunication pronounced by a Pope, every act of hostility or treachery on the part of churchmen or military monks, would tend to confirm his decision. How far Frederick, the innovator, the revolutionist, the despiser of received beliefs, may have been influenced by the traditional theories of the Holy Roman Empire, is another matter. It is possible that he employed them as useful for his purpose, without that honest faith in them which clearly moved the Ottos and his own grandfather. The magnificent theory of the Empire may well have kindled his imagination, and he may have consciously striven to change that magnificent theory into a living reality. But the dominion at which he aimed was the immediate effective dominion of a Byzantine Emperor or a Saracen Sultan, rather than the shadowy lordship of a world, every inch of which was partitioned out among kings and commonwealths which were practically independent. But, whether strictly as Emperor or in any other character, there can be no doubt that Frederick gradually came to set before himself, as the main object of his life, the depression of the spiritual, and the exaltation of the temporal, power.

As we observed before, whatever might have been Frederick's own secret views, such a transfer of power as this could, in that age, hardly take any acknowledged outward shape, except that of a further deification of the temporal power, a more complete recognition of the Emperor, and not the Pope, as the true Vicar of Christ upon earth. We must also remember the tendencies and ways of expression of that age, how every thought took a religious direction, and how, exactly as among the Puritans of the seventeenth century, every strong emotion instinctively clothed itself in scriptural language. Every one who knows

anything of the literature of those times is familiar with the way in which the thoughts and words of Scripture are habitually applied by men to their own public or private affairs, applied in the most perfect good faith, but in a tone which to our habits seems irreverent, and sometimes almost blasphemous. We are thus prepared to find devoted partisans of Frederick investing him with a religious character, and lavishing upon him the most sacred language of prophets and apostles. Again, the Christian Emperors had all along retained from their pagan predecessors several official phrases borrowed from the old heathenism. The Emperor and all that belongs to him was 'divine' and 'sacred;' his rescripts were 'oracles;' his parents and his children were spoken of as if they belonged to a stock superior to humanity. Between these two influences we are not surprised to find Frederick spoken of in terms which, with modern feelings, we should apply only to the holiest of objects. The question now comes,—Was Frederick ever directly and seriously put forth by himself or by his followers as the prophet, apostle, or Messiah of a new religion?

That he was so put forth seems to be the opinion of M. Bréholles, and we must wind up by a glance at the evidence on which he founds his belief. He would hardly rely with any great confidence on two or three scoffing speeches attributed to Frederick himself, which may or not have been really uttered by him, but which in any case illustrate the conception which men in general formed of him. Thus, as is well known, he was commonly believed to have said that Jews, Christians, and Saracens had been led away by three impostors, Moses, Jesus, and Mahomet, and that he, Frederick, would set up a better religion than any of them. If such a speech was ever made, it could only have been in mockery, and it would convict Frederick of utter contempt for all religion, rather than of any serious scheme for setting up a religion of his own. The real stress of the argument lies on the meaning to be put on certain passages in which contemporary partisans of Frederick speak of him in language which undoubtedly, at first sight, has a very extraordinary sound. It is not wonderful, in an age when every name was played upon and made the subject of mystical explanations, that the fact that Frederick's great minister bore the name of Peter should have been made the subject of endless allusions. The parallel between Simon Peter and his master and Peter de Vineâ and his master shocks the taste of our times, but it was thoroughly in the taste of the thirteenth century. Peter is to go on the water to his master; he is converted, and is to strengthen his brethren; his master has committed to him the trust to feed his sheep and to bear the keys

of his kingdom. All these and other expressions of the same sort are found in the original documents collected by M. Bréholles. So we find Frederick hailed as a saint,—'Vivat, vivat Sancti Friderici nomen in populo.' We find Frederick himself, in one and the same passage, applying to his mother the old title of pagan divinity, and speaking of his birthplace in a way which implies a parallel between himself and Christ. Constance is 'diva mater nostra,' and Jesi is 'Bethleem nostra.' But here is one passage which perhaps surpasses all. This is found in a letter from a Sicilian Bishop to Peter de Vineâ, a letter which is by no means easy to understand by reason of the figurative language used throughout, but in which there is a direct parallel of the most daring kind between Christ and Frederick. After an allusion, brought in in a strange way, to the Last Supper and the rite then instituted, the writer goes on thus—

'Unde non immerito me movet hæc externa relatio, quod Petrus, in cujus petrâ fundatur Imperialis Ecclesia, quum augustalis animus roboratur in cœnâ cum discipulis, tale certum potuit edixisse.'

The language here is what we should now-a-days call blasphemous; but it is really only the habit of scriptural application pushed to its extreme point. We should also remember that Frederick and his partisans, against whom so much Scripture had been quoted, would have a certain pleasure in showing that they could quote Scripture back again, as certainly no one ever did with more vigorous effect than Frederick himself at some stages of his controversy with Gregory. But we do not see in this or in the other passages quoted, enough to justify some of the expressions used by M. Bréholles. Such we mean as when he says,—

'Ecrivant aux cardinaux durant la vacance du saint-siége, en 1243, il leur rappelle l'exemple des Israélites, qui, errant sans chef dans le désert pendant quarante jours, en vinrent à prendre un veau d'or pour leur dieu: "S'il faut renoncer à la consecration d'un nouveau pape, ajoute-t-il, qu'un autre saint des saints paraisse enfin, mais quel sera-t-il?" [Si papalis cessavit unctio, veniet ergo alius sanctus sanctorum, et quis ille est?] Lui-même apparemment, puisqu'il aspire au rôle de prophète et de Messie: et sur ce point les contemporains ne se trompaient guère quand ils accusaient Frédéric de chercher à usurper pour son propre compte le souverain pontificat. Delà à se déclarer d'une essence presque divine, il n'y a qu'un pas.'

M. Bréholles here quotes the passages in which Frederick calls his son 'Cæsarei sanguinis divina proles,' and speaks of his mother and his birthplace in the way in which we have already spoken. Elsewhere he says—

'Ainsi Frédéric II. semble bien, de son vivant, adoré et divinisé à

peu près comme une émanation de l'Esprit-Saint. Dans les termes qui servent à exprimer sa suprématie religieuse, il y a quelque chose qui tient à la fois du paganisme de l'Orient, qui rappelle le culte personnel imposé à leurs sujets par les empereurs de l'ancienne Rome et par les califes fatimiteis de l'Egypte.'[1]

Surely this language is stronger than the passages quoted will bear out. To us it seems that the actual designs of Frederick were not unlike those of Henry the Eighth. We forego any comparison between the two men, than whom few can be more unlike. Henry was at least a firm believer in his own theological system. Frederick, we cannot help thinking, looked on all theological systems as mere political instruments. But the immediate object of each was the same, to bring the spiritual power under the control of the temporal, to transfer to the King the ecclesiastical supremacy of the Pope. Within his own Kingdom of Sicily the position of Frederick must have been identical with the position of Henry. If he could do no more, he could at least be both Pope and King in his own realm. But, as Emperor, he must have at least dreamed of a far wider supremacy, even if he gave up any attempt to obtain it as impracticable. The Emperor, Lord of the World, might dream of establishing a spiritual as well as a temporal supremacy over all the realms which were in theory placed behind his superiority. He might deem it really possible to establish such a superiority within those realms which still retained some measure of connexion with the Empire. The result would have been the subjection of Western Europe, or, at all events, of three of its most important portions, to the deadening yoke of a Caliphate.

Our remarks have been desultory and imperfect. Such a subject as the life and objects of Frederick the Second might furnish materials for volumes. We can profess to do little more than to call attention to some of the most wonderful chapters of European history, and to point to the collection of M. Bréholles as one of the most wonderful treasure-houses of original materials with which any scholar has ever enriched historical learning.

[1] Was there any Caliph, except Hakem, who imposed on his subjects anything which could be strictly called 'culte personnel'?

Art. V.—Professor Conington's Æneid.

Professor Newman informed us, in the course of his controversy with Professor Arnold, that at least one artisan was eager to complete his acquaintance with the Iliad, through the medium of his own vigorous though eccentric version; but in spite of this weighty testimony, we are inclined to believe that the revived taste for translation prevails more strongly among writers than among readers. Hitherto we can detect no signs of the wide-spread eagerness, which existed in Dryden's time, to naturalize the masterpieces of classic poets in the literature of England. Perhaps experience has shown that the expectation was chimerical. People generally open a translation now in the hope of some unexciting pastime from comparing an original, which they admire, with a copy which they are not prepared to despise. Translators, we imagine, must often be attracted by the feeling which made the revision of Dryden's 'Plutarch' one of the pleasantest labours of Clough's life; the feeling that in translating nobody incurs the intellectual or moral responsibility of propounding inadequate solutions of important questions as true: for, in the first place, no translation claims to be final; in the second place, if it did, it would do little harm. Everybody sees that the Irish schoolmistress was only reasonable when she said, 'Ah! niver mind the long words, Norah darlint; shure they're only the names of foreign countries; and, plase the Saints, ye'll niver be in any of them.' And translators are entitled to the same indulgence as Norah; the refinements which they miss, or else preserve imperfectly, are only the livery of an extinct civilisation.

If the thankless labours of translators are too frequently received with indulgence akin to contempt, that only increases our admiration for Professor Conington's courage, no less than for the industry, which has embodied a scholarly commentary in a readable poem. It would be ungracious to reproduce Dr. Johnson's wonderment about the dancing-bear; for, though we are honestly surprised that it should be possible to express any views on the meaning of the Æneid in an imitation of 'The Lord of the Isles,' we are still more surprised to see Professor Conington's views expressed in such a successful imitation.

It is a very great feat to produce an English version of the Æneid, which is not harder reading to English scholars than the Latin original,—which is accessible to all English readers whose powers of attention are not exhausted by the 'Bride of Abydos,' and the 'Idylls of the King.' And if, after all, Pro-

fessor Conington has failed to produce an adequate rendering of Virgil's *chef-d'œuvre*, 'Magnis tamen excidit ausis;' if his work must one day be relegated to the twilight immortality of literary historians, he can supply his own consolation—

Κάθανε καὶ Πάτροκλος, ὅ περ σέο πολλὸν ἀμείνων.

It is pleasant and reasonable to begin by dwelling on the favourable impression which a long work gives as a whole; it is doubly reasonable when the long work is a translation. The best of translators can only equal his original; he can scarcely ever surpass him. Often it is his praise—it is very often the praise of Mr. Conington—to reproduce the general effect of the original without a single dazzling felicity. Even if it were possible to marshal in uniform array his successes and the failings of his predecessors, the public would have a right to find the procession monotonous, to be 'tired of always hearing' Aristides 'called the Just.' Hence any detailed criticism is necessarily more concerned with faults than beauties. And it is worth while to mention this in passing, lest we should be suspected of any invidious purpose, in a somewhat one-sided catalogue of more or less microscopical defects.

For, after all, these minutiæ are the only things that can be ascertained; the general reader is a better judge than the critic of the vague but interesting question, how many faults, where faults of *some* kind are inevitable, a translator like Mr. Conington has strength to support; how many cut flowers might be expected to wither without relieving the cultivated barrenness of Pitt's version of the Æneid.

There is one point, however, going deep into the whole life of the Æneid, which must be discussed before we can enter into this detailed examination; we mean the metre selected by Mr. Conington; and we naturally turn to his Preface to learn the reason for what seems a paradoxical choice. He tells us (page 9) that he does not regard his 'measure as the one true equivalent of the Virgilian hexameter, and that probably a better case could be made out both for heroic blank verse and the heroic couplet; the *ottava rima* of Tasso,' he thinks, 'might represent the general impression, though not the effect of particular lines;' but according to him, 'the question is not so much what is absolutely best, as what is best for the individual translator.' We do not care to dispute a theory which was held by the late Mr. Worsley, and secured us his charming version of the Odyssey, instead of a dreary exercise in hexameters, which would only have made their rhythm felt by sacrificing variety; we are ready to believe on his authority, supported by Mr. Conington's, that blank verse deserving the

name is only possible to one or two writers in a generation. But although Mr. Worsley has caught the tune of Spenser's minstrelsy far more successfully than Lord Derby or even Cowper has echoed the organ tones of Milton, we are inclined to doubt whether the superiority of Mr. Conington's success in imitating Scott is proportioned to the inferiority of his model. That model has been followed very closely, though by no means servilely, so that we are half surprised that the heroic couplet should have been discarded to avoid rivalry with Dryden, by a translator who seems to have courted rivalry with Scott. The one insuperable objection to any regular stanza is stated with singular moderation, when we are told that it has trammels which would be more sensibly felt in attempting to deal with Virgil's complicated paragraphs, than in endeavouring to reproduce the less highly organized structure of Homer's narrative.

It is curious that no translator seems to have asked himself, why the freedom in distributing the intervals of rhyme, which is possible to Scott in dealing with the ballad metre, should be impossible in dealing with the heroic metre. Perhaps the metre we have suggested may be destined to wait, with the English hexameter, in the limbo of impracticability, till fished out by an original poet. It is certain that, however the decasyllabic line be manipulated, it is likely, from the want of really short syllables, to be very much less varied and accented than the hexameter, as written by Virgil; in the ballad metre, as written by Scott, it is possible to vary the pauses by changing the length of line, and to emphasize them by the use of rhyme. But Mr. Conington seems to show a very imperfect appreciation of the powers of his chosen instrument. The anapæstic movement of the 'Lay of the Last Minstrel' may be beneath the dignity of Virgil, and the same cause may make 'Harold the Dauntless' read like a burlesque, though this is only to be expected when an author executes an anonymous parody on his own writings; but for all that, the metre of the greater part of 'The Lord of the Isles,' and of the first half, at any rate, of Mr. Conington's Æneid, is less accented and more monotonous than any recognised metre in the language. It *is* rapid, and that is almost its only merit; it is less fatiguing to watch it slipping by, with easy slipshod gait, than to follow Pope's imitators in their eternal tiresome minuet. But it is in no sense an equivalent for the music of Virgil; the greater part of the Æneid is raised above prose, chiefly by the uniform ease and grace with which an elaborate metre is controlled;—the parallel passages in Mr. Conington's version are raised above prose, by his efforts to surmount the difficulties of the easiest

of English metres. One might say that Virgil dances swiftly forward, swaying to and fro as he circles in a mazy measure, while his poor translators lash themselves to keep pace with him, and run races among themselves for the honour of not being last. Very often Mr. Conington wins, but that is because he gives up all pretence of keeping step. Take the opening lines, which are characteristic both in Virgil and in Conington: —

> 'Arms and the man I sing, who first
> By Fate of Ilian realm amerced,
> To fair Italia onward bore,
> And landed on Lavinium's shore,—
> Long tossing earth and ocean o'er,
> By violence of heaven, to sate
> Fell Juno's unforgetting hate:
> Much laboured too in battle-field,
> Striving his city's walls to build,
> And give his Gods a home;
> Thence comes the hardy Latin brood,
> The ancient sires of Alba's blood,
> And lofty-rampired Rome.
>
> 'Say, Muse, for godhead how disdained,
> Or wherefore wroth, Heaven's queen constrained
> That soul of piety so long
> To turn the wheel, to cope with wrong.
> Can heavenly natures nourish hate
> So fierce, so blindly passionate?'

It would be too much to expect a translator to be as successful as Virgil, in making the minor metrical pauses coincide with the chief grammatical pauses, though the feat is not impossible in English, as any one may see who cares to examine 'Paradise Lost,' or 'Gebir,' where Landor seems to have been ambitious of treating Virgil, as Persius had treated Horace,—compressing and refining him into a quintessence of delicate obscurity. But when we have once conceded the principle, that nearly every clause of Virgil is to be thrown into a separate line, one wishes the lines to be as various as possible, for scarcely a single clause in Virgil is thrown into the same metrical form. Alas! Mr. Conington is inexorable; he boils down the complexity of Virgil to one mess of inorganic consistency, and then lets it trickle out in a stream of featureless, though transparent jelly; till we are inclined to think that it would have been less unmerciful to cut Virgil up into lengths of eight lines, if only each length might have had a coherence and system of its own.

It increases our regret, that we can point to several passages where Professor Conington has certainly succeeded in repro-

ducing the metrical effect of the original. For instance, we may cite his translation of Æneid VI. 264-281:—

'Eternal Powers, whose sway controls
The empire of departed souls,
Ye too, throughout whose wide domain
Black Night and grisly Silence reign,
Hoar Chaos, awful Phlegethon,
What ear has heard let tongue make known:
Vouchsafe your sanction, nor forbid
To utter things in darkness hid.

'Along the illimitable shade
Darkling and lone their way they made,
Through the vast kingdom of the dead,
An empty void, though tenanted:
So travellers in a forest move
With but the uncertain moon above,
Beneath her niggard light,
When Jupiter has hid from view
The heaven, and Nature's every hue
Is lost in blinding night.

'At Orcus' portals hold their lair
Wild Sorrow and avenging Care;
And pale Diseases cluster there,
And pleasureless Decay.
Foul Penury, and Fears that kill,
And Hunger, counsellor of ill,
A ghastly presence they:
Suffering and Death the threshold keep,
And with them Death's blood-brother, Sleep:
Ill Joys with their seducing spells
And deadly War are at the door;
The Furies couch in iron cells,
And Discord maddens and rebels;
Her snake-locks hiss, her wreaths drip gore.'

Now let us hear Dryden, for neither Pitt nor Symmons is worth hearing, as the first is laboured and dull, and the second colourless, though manly:—

'Ye realms, yet unreveal'd to human sight,
Ye gods, who rule the regions of the night,
Ye gliding ghosts, permit me to relate
The mystic wonders of your silent state.
Obscure they went through dreary shades, that led
Along the waste dominions of the dead:
Thus wander travellers in woods by night,
When Jove in dusky clouds involves the skies,
And the faint crescent shoots by fits before their eyes.
By the Moon's doubtful and malignant light:

Just in the gate, and in the jaws of Hell,
Revengeful Cares and sullen Sorrows dwell;
And pale Diseases, and repining Age;
Wan Fear, and Famine's unresisted rage:
Here Toils, and Death, and Death's half-brother, Sleep,
Forms terrible to view, their centry keep:
With anxious Pleasures of a guilty mind,
Deep Frauds before, and open Force behind:
The Furies' iron beds, and Strife that shakes
Her hissing tresses, and unfolds her snakes.'

In comparing these versions, we feel at a loss to decide by any standard, except the fashion of the day. Professor Conington is more accurate and varied, Dryden is more sustained and vigorous. True, he is careless here and there, suppressing entirely 'et rebus nox abstulit atra colorem,' and permitting himself to write 'revengeful,' when 'avenging' would have been as easy, and every way preferable. But he is substantially faithful, and where he drops a feature in one place, he is careful to reproduce it in another; he cannot express that the regions of the night are silent, so he reminds us that the state of the dead is silent,—the shades are dreary, because the halls of Dis are empty, as his empire is void. Toils and Death, and other evils keep their sentry, instead of '*dwelling*' as in Virgil, because Revengeful Cares and sullen Sorrows were reduced to '*dwell*' in a former line, instead of being allowed to set their couch or hold their lair as in Virgil or Conington.

On the other hand, 'Famine's unresisted rage' is one of those wretched expressions which would never have got a footing in our language, if the men who elaborated the heroic couplet had not undertaken long translations with a very imperfect instrument. It would be an insult to Mr. Conington and our readers to point out the superiority of 'Hunger, counsellor of ill,' which is as perfect as anything in another language can be. But Dryden's rendering of 'Vestibulum ante ipsum primisque in faucibus Orci,' comes far nearer to the horror and energy of the original, though even he does not suggest with sufficient emphasis that, horrible as hell's jaws are, there is worse behind. 'The threshold keep' reads like a washed-out and unconscious reminiscence of Dryden's 'their centry keep,' with the further disadvantage, that it is a needless offence against the parsimony of predicates, which is one of the characteristics and beauties of classical poetry. Again, 'blood-brother' would be questionable English, even if it were not an exaggerated translation of 'consanguineus,' which Dryden renders very easily and happily. 'Seducing spells' is too modern. It is an abstraction with too long a history, appealing to the associations of a civilisation

which has passed through the mediæval notions of witchcraft, and left them behind. 'Iron cells' is an unfortunate translation of 'ferrei thalami;' it suggests raging maniacs, or nuns of a flagellant order, while Virgil suggests a piquant contrast, by choosing a word, which in another context would call up associations of delicacy and refinement. Again, 'Discordia demens' is related to Mr. Conington's version, as a bas-relief is to a painting; and the same tendency to heighten the tone runs through the version. Virgil says, 'like the road in a wood by a doubtful moon,' Conington,

> 'So travellers in a forest move,
> With but the uncertain moon above,'

which shows that Mr. Tennyson has not yet weaned him from the corrupt tradition that every syllable, which ends in *ove*, may rhyme with every other. Virgil is content to talk about Sorrow and Fear; Mr. Conington will have nothing to do with Sorrow which is not wild, or with Fears which do not kill. For the same reason, we suppose, he tells us that Chaos is hoary, and Phlegethon awful.

After so much hyper-criticism, it is only fair to give Mr. Conington his revenge, by offering a version of our own:—

> 'Gods of the under world, and silent Ghosts,
> And Styx and Chaos where wide Night is still,
> I tell the tale I heard; vouchsafe your will
> That I may bring earth's hidden things to day,
> And what is sunken under the dark coasts.
> They went through shadowy solitary night,
> And Pluto's blank domains and empty halls—
> As travellers whom the moon's unkindly light
> Baffles in forests on a darkling way;
> When heaven's face gathers shade and deep night falls,
> Turning the colour of the world to grey.
> Hard at the threshold, on the skirts of Hell,
> Woe and avenging Cares sit sentinel;
> And pale Diseases dwell, and sad Old Age,
> And shameful Want, and Awe and Famine fell,
> And Toil and Death, all presences of fear,
> And Slumber kin to Death, and Joys of sin,
> Fronting War's deadly house; and next within
> The Furies' iron bower, and Strife and Rage
> With gory fillets twined in snaky hair.'

Mr. Conington seems to have been aware that Scott was a more satisfactory model for metre than for language; and we are inclined to believe that he himself has succeeded better in his diction than in his versification. He has not succeeded perfectly. Virgil's diction has been elaborated through suc-

cessive stages of one continuous process. Professor Conington's diction is often comparatively rude, but it bears traces of a much longer and more varied history, and of the action and reaction of opposite influences.

Still much is to be said for a long translation, written in English of almost uniform ease and purity, in both which merits we are disposed to think Mr. Conington superior even to Dryden, though he falls below him in idiomatic vigour, while both leave not only Pitt, but even Symmons, out of sight.

It is true we meet not unfrequently with traces of want of dexterity, such as—

> 'By fate of Ilian realm amerced,'—

which can only differ from such an inversion as,

> 'Soon as the wildered child saw he,'

in not being primitive, though it is certainly a 'peculiarity inconsistent with high finish' (Preface, p. xi.), and we almost think mistaken in sense; and we are sorry to hear that Æneas is destined

> 'Fierce war in Italy to wage
> And quell her people's patriot rage.'

But the sound of rage is too useful for its sense to be remembered in verse, while its meaning is unfortunately still preserved in prose.

Soon after we find that he

> 'Shall give his veterans worn with strife
> A city and a peaceful life,
> Till su...mers three have seen him reign
> Three winters crowned the dire campaign.'

Here the translation is certainly harder to understand than the original, and even after turning to the refreshing simplicity of

> 'Ternaque transierint Rutulis hiberna subactis,'

though we see what 'crowned' must be made to mean, it is difficult to explain how it comes to bear that meaning.

Then there are pieces of unfortunate eclecticism, like

> 'Nor failed a brother's eye to read
> *Junonian* rancour in the deed;'

where the mechanical metaphor in the first line is more like Scott than Virgil, and 'Junonian rancour' in the second is more like Mr. Conington than either.

Or,

> 'Where Dardan swains before the king
> With clamorous demonstration bring,'

where 'swains' is in the style of Pope, and 'clamorous demonstration' in the style of Grote.

Then we really cannot agree with Mr. Conington, that the eighteenth-century use of 'fair' is a thing that men should not willingly let die; and, like most imitators, he seems to have rather exaggerated the features of his original.

'Priam's *eldest fair*.'

Or,

'She clings, she cleaves, she makes him lie
Lapped in her breast, nor knows *lost fair*,
How dire a god sits heavy there,'

seem to us a touch beyond Pope or Waller, who, unless we are mistaken, thought an article at least was necessary to turn an adjective into a substantive.

Again, does Mr. Conington really think

'Careened the vessels glide'

a graceful translation of 'Labitur uncta vadis abies'? Of course the vessels must have been careened at some time in order to deserve the epithet 'uncta,' but the explanation is tasteless and misplaced; and when we have

'Some launch the vessels, some careen,'

as a translation of 'natat uncta carina,' the explanation is not only intrusive, but positively misleading; nobody had time to careen the vessels then, though they probably were careened when drawn up for the first time after the storm.

It is due to Mr. Conington to say that he very seldom misrepresents his author so completely; the only other instance we can recall is the rendering of

'Quid struat his cœptis, quam, si Fortuna sequatur,
Eventum pugnæ cupiat manifestius ipsi,
Quam Turno regi aut regi apparere Latino.'

'What prize he seeks from war, what end,
Should fortune smile, his hopes intend,
King Diomed may fitlier scan
Than Turnus or Latinus can.'

There may be some doubt as to whether 'ipsi' refers to Æneas or Diomed, but there can be no doubt that whoever is meant is contrasted as a *parvenu* with the ancient dignity of King Turnus and King Latinus, whose titles are transferred to Diomed by Mr. Conington.

Perhaps even here he offends of *malice prepense*, as when 'Sensit enim nimia cæde atque cupidine ferri' is rendered

'When Nisus marks the excess of zeal
The maddening fever of the steel,'

or 'a monument of pure Marpesian grain' is substituted for 'a hard rock or a Marpesian cliff' as a parallel to the immobility of Dido in the shades.

Or again, where, from a passion for incorporating a commentary in a translation,

> 'Hoc sibi pulcra suum ferri Proserpina munus,
> Instituit,'

becomes

> 'For so has Proserpine decreed
> That this should be her beauty's meed.'

Of course Proserpine was beautiful, and so was the bough, and she was glad to receive it in the gloom of Hades, but that does not prove that the bough was the price of her beauty.

The same tendency sometimes to explanation, sometimes to antithesis, runs through the whole of the translation. For instance, Hecuba tells her husband in Virgil,

> 'Non tali auxilio nec defensoribus istis,
> Tempus eget;'

in Conington,

> 'Times so dire,
> Bent knees, not lifted arms require,'

and again bids him, with very little encouragement from Virgil,

> 'Learn at length
> The secret of an old man's strength.'

When Dido tells Æneas she wishes for a son

> 'Qui te tamen ore referrit,'

Mr. Conington suggests the reason,

> 'The sire had cheered me in the son.'

Every one of these are slight things individually, but they are far from standing alone. In the same spirit, when Virgil is content to say that a temple was of marble, his translator tells us that it was 'of marble's purest grain,' though nobody would talk of pure grain of marble unless for want of a rhyme to 'fane.' When he is content to speak of the Latin race and the Alban fathers, his translator informs us, at the expense of a doubtful rhyme, that the Latin brood was hardy, and the sires of Alban blood were ancient.

Pecca fortiter is a bad motto for a Christian, but a good motto for a translator. Dryden is not unlike Virgil when he says—

> 'From whence the race of Alban fathers come,
> And the long glories of imperial Rome;'

but both Virgil and Dryden had some confidence in their inspiration and their subject.

Again, where Virgil hints at a metaphor in one word, Mr. Conington constantly completes it, leaning to that side of English which is least akin to Latin, especially to Virgil's Latin. Thus, to take our instances from the first three pages only, we

have 'volvere casus' rendered 'So long to turn the wheel,' which is scarcely intelligible; 'sic volvere Parcas,' 'the web of fate was woven so;' 'æternum servans sub pectore vulnus,' 'Feeding evermore the vulture at her bosom's core;' and 'studisque asperrima belli,' 'Hardened in war's sternest school.'

There is a spiritual vagueness and freshness in Virgil that we miss in *all* his translators. Thus, Virgil describing the refuge of Æneas' squadron after the storm, begins, 'There is a place where the sea goes far back,' keeping to the primitive intuition. Mr. Conington, like the rest, goes straight to the inference founded on experience, and begins—

> 'Deep in *a bay* an island makes
> A haven by its jutting sides.'

Where Virgil says—

> 'Hoc visum nulli non ipsi effata sorori,'

Professor Conington explains—

> 'Not even into her sister's ear
> She dared to breathe that tale of fear.'

But all the other translators dilute the line into a couplet. Occasionally, too, the metre is an obstacle to terseness and fidelity, when we have

> 'Tantæne animis celestibus iræ'

turned into

> 'Can heavenly natures nourish hate
> So fierce, so blindly passionate?'

where the last rather mawkish line is obviously intended to rhyme with 'hate,' rather than to caricature *tantæ;* while Symmons is neat, if not satisfactory—

> 'Ah, can such passions goad celestial wills?'

For the same reason

> 'I dread the Grecians even when they give'

is a better rendering of 'Timeo Danaos et dona ferentes' than

> 'Whate'er it be, the Greek I fear,
> Though presents in his hand he bear.

We certainly should not have expected any of Virgil's minute touches, which had been preserved in Dryden, would have been effaced by Mr. Conington; but such is too often the case. Dryden keeps 'the groans of *men*' at the funeral of Marcellus, which Mr. Conington reduces to 'a groan from Mars' plain.' Dryden tells us that Pallas *presumed* to hurl the fire of Jove, while Mr. Conington effaces the emphatic 'ipsa' from the complaint of Juno.

In Dryden, after the supplication of Venus---

> 'The Father of immortal race
> Smiling with that serene indulgent face,
> With which he drives the clouds and clears the skies,
> First gave a *holy kiss*, then thus replies:'

In Mr. Conington—

> 'With that refulgence in his eye
> Which soothes the *humours* of the sky,
> Jove on his daughter's lips impressed
> A gracious kiss, then thus addressed.'

Dryden gives the force of 'Oscula libavit natæ,' where 'natæ,' from its position, must be emphatic, in one trial; Mr. Conington misses it in two. Indeed, he is not fortunate in his mythology. All his deities seem to move about in undress. Jupiter, instead of being a good-natured dignified *roi-fainéant*, like the Arthur or Charlemagne of later legend, sinks into a pompous prosy old gentleman in dressing-gown and slippers, who, not content with offering to be communicative, as in Virgil, actually promises to be veracious to his own daughter.

We had strong thoughts of inflicting the whole of his tediousness on our readers, in the spirit of Dogberry, but we forbear, and spare them everything except the concluding description of the demon imprisoned in the close temple of War, as the lines which we have italicized are decidedly superior to the original; and though they make the description too long for dramatic propriety, that is no fault in a translation of Virgil, who never deprives any speaker of any opportunity of saying a fine thing:—

> 'Within unnatural Rage confined,
> Fast bound with manacles behind,
> *His dark head pillowed on a heap*
> *Of clanking armour, not in sleep,*
> Shall gnash his savage teeth, and roar
> From lips incarnadined with gore.'

After so much minute criticism, it will be a relief to ourselves and our readers to turn to some more extended specimens of the way in which Mr. Conington has represented those parts of the Æneid on which the fame of Virgil chiefly rests. The Second Book opens rather tamely:—

> 'Each eye was fixed, each lip compressed,
> When thus began the heroic guest:
> "Too cruel, lady, is the pain,
> You bid me thus revive again;
> How lofty Ilium's throne august
> Was laid by Greece in piteous dust,

The woes I saw with these sad eyne,
The deeds whereof large part was mine:" '

where the archaism in the seventh line seems rather frigid. To the best of our recollection, Virgil uses *his* archaisms to relieve colourless narrative, not to check the current of impetuous speech. When he actually begins his story, Æneas improves—

'Worn down by wars,
Long beating 'gainst Fate's dungeon-bars
As year kept chasing year,
The Danaan chiefs, with cunning given
By Pallas, mountain-high to heaven
A giant horse uprear,
And with compacted beams of pine
The texture of its ribs entwine.
A vow for their return they feign—
So runs the tale, and spreads amain.
There in the monster's cavernous side
Huge frames of chosen chiefs they hide,
And steel-clad soldiery finds room
Within that death-producing womb.'

The Latinism which we have italicized is not very happy in itself, and might suggest packing-cases full of chiefs to an ignorant reader.

We pass to the first introduction of Laocoon:—

'Girt with a throng of Ilion's sons'

(we have 'Ilium's sight' on the preceding page)

'Down from the tower Laocoon runs,
And, "wretched countrymen," he cries,
"What monstrous madness blinds your eyes?
Think you your enemies removed?
Come presents without wrong
From Danaans? have you thus approved
Ulysses, known so long?
Perchance—who knows?—these planks of deal
A Grecian ambuscade conceal,
Or 'tis a pile to o'erlook the town,
And pour from high invaders down,
Or fraud lurks somewhere to destroy;
Mistrust, mistrust it, men of Troy!
Whate'er it be, a Greek I fear,
Though presents in his hand he bear.
He spoke, and with his arm's full force
Straight at the belly of the horse
His mighty spear he cast:
Quivering it stood: the sharp rebound
Shook the huge monster: and a sound
Through all its caverns passed.

And then, had fate our weal designed,
Nor given us a perverted mind,
Then had he moved us to deface
The Greeks' accursed lurking-place,
And Troy had been abiding still,
And Priam's tower yet crowned the hill.'

Nobody can deny that this is a good translation, though we cannot get over the planks, and there is a romantic and picturesque touch in the last line which we scarcely like; the magic of the Border is at work, and it is the first stage of the transformation of Priam into a moss-trooper.

After all, we turn with satisfaction, not only to Virgil, but to Dryden, whose superiority, in both dignity and power, more than compensates for his comparative want of finish:—

'Laocoon, followed by a numerous crowd,
Ran from the fort; and cry'd, from far, aloud:
"O wretched countrymen! what fury reigns?
What more than madness has possess'd your brains?
Think you the Grecians from your coasts are gone,
And are Ulysses' arts no better known?
This hollow fabric either must enclose,
Within its blind recess, our secret foes;
Or 'tis an engine rais'd above the town,
T' o'erlook the walls, and then to batter down.
Somewhat is sure design'd; by fraud or force;
Trust not their presents, nor admit the horse."
Thus having said, against the steed he threw
His forceful spear, which, hissing as it flew,
Pierc'd through the yielding planks of jointed wood,
And trembling in the hollow belly stood.
The sides transpierc'd return a rattling sound,
And groans of Greeks enclos'd come issuing through the wound.
And had not heaven the fall of Troy designed,
Or had not men been fated to be blind,
Enough was said and done t' inspire a better mind:
Then had our lances pierc'd the treacherous wood,
And Ilian towers and Priam's empire stood.'

The second part of the episode of Laocoon is a more favourable specimen of Mr. Conington, and the powers of his chosen metre:—

'But ghastlier portents lay behind,
Our unprophetic souls to blind.
Laocoon, named as Neptune's priest,
Was offering up the victim beast,
When lo! from Tenedos—I quail,
E'en now, at telling of the tale—

Two monstrous serpents stem the tide,
And shoreward through the stillness glide.
Amid the waves they rear their breasts,
And toss on high their sanguine crests:
The hind part coils along the deep,
And undulates with sinuous sweep.
The lashed spray echoes: now they reach
The inland belted by the beach.
And rolling bloodshot eyes of fire,
Dart their forked tongues, and hiss for ire.
We fly distraught; unswerving they
Toward Laocoon hold their way;
First round his two young sons they wreathe,
And grind their limbs with savage teeth:
Then, as with arms he comes to aid,
The wretched father they invade,
And twine in giant folds; twice round
His stalwart waist their spires are wound,
Twice round his neck, while over all
Their heads and crests tower high and tall.
He strains his strength their knots to tear,
While gore and slime his fillets smear,
And to the unregardful skies
Sends up his agonizing cries;
A wounded bull such moaning makes,
When from his neck the axe he shakes,
Ill-aimed, and from the altar breaks.
The twin destroyers take their flight
To Pallas' temple on the height;
There by the Goddess' feet concealed
They lie, and nestle 'neath her shield.
At once through Ilium's hapless sons
A shock of feverous horror runs:
All in Laocoon's death-pangs read
The just requital of his deed,
Who dared to harm with impious steel
Those planks of consecrated deal.'

We could have got over the deal, or thrown the blame on Virgil; but the planks are quite too much for us; and, in our vexation, we are even inclined to retract, or at least to qualify, our praise: not a single line is objectionable, but not a single line takes hold either of us or its successors. In fact, we have scarcely met with any lines which deserved separate immortality, except those from the speech of Panthus:—

'We have been Trojans; Troy has been:
She sat, but sits no more, a queen.'

The arming of Priam is very well done, and is a welcome relief after a dull couplet to inform us that—

> 'The Greek
> Is potent, where the flames are weak.'

> 'Perhaps you ask of Priam's fate;
> He when he sees his town o'erthrown,
> Greeks bursting through his palace-gate,
> And thronging chambers once his own,
> His ancient armour, long laid by,
> Around his palsied shoulders throws,
> Girds with a useless sword his thigh,
> And totters forth to meet his foes.
> Within the mansion's central space,
> All bare and open to the day,
> There stood an altar in its place,
> And, close beside, an aged bay,
> That drooping o'er the altar leaned,
> And with its shade the home-gods screened.'

But after this brief experience of the superior vigour of alternate rhymes, we have the old sing-song in Hecuba's speech.

We shall close our extracts from this book with the parting speech of Creusa, in order to contrast it with the version of Pitt, to whose taste and elegance we have scarcely yet done justice:—

> '"Why grieve so madly, husband mine?
> Nought here has chanced without design:
> Fate and the Sire of all decree
> Creusa shall not cross the sea.
> Long years of exile must be yours,
> Vast seas must tire your labouring oars;
> At length Hesperia you shall gain,
> Where through a rich and peopled plain
> Soft Tiber rolls his tide:
> There a new realm, a royal wife,
> *Shall build again your shattered life.*
> Weep not your dear Creusa's fate;
> Ne'er through Mycenæ's haughty gate
> A captive shall I ride,
> Nor swell some Grecian matron's train,
> I, born of Dardan prince's strain,
> To Venus' seed allied:
> Heaven's mighty Mother keeps me here:
> Farewell, and hold our offspring dear."'

The line we have marked is perhaps a thought too modern,

though it recalls the most Virgilian of our modern poets, but we are more inclined to complain of the way in which

'Dardanis, et divæ Veneris nurus'

is spun out, and the touching epithet, 'communis,' is curtailed.

Pitt begins—

'Why with excess of sorrow raves in vain
My dearest lord, at what the gods ordain?
Oh, could I share thy toils! but fate denies;
And Jove, dread Jove, the sovereign of the skies.
In long, long exile, art thou doomed to sweep
Seas after seas, and plough the wat'ry deep.
Hesperia shall be thine, where Tyber glides
Through fruitful realms, and rolls in easy tides.
There shall thy fates a happier lot provide,
A glorious empire, and a royal bride.
Then let your sorrows for Creusa cease;
For know, I never shall be led to Greece;
Nor feel the victor's chain, nor captive's shame,
A slave to some imperious Argive dame,
No!—born a princess sprung from heaven above,
Ally'd to Venus, and derived from Jove,
Sacred from Greece, 'tis mine, in those abodes,
To serve the glorious mother of the Gods.
Farewell; and to our son thy care approve,
Our son, the pledge of our commutual love!'

One sees at a glance that these versions belong to two opposite schools of translation: of the two, Pitt's is the more consistent; whenever a metrical difficulty presents itself, the original is expanded to the required size. Mr. Conington hesitates; sometimes he cuts down his original, sometimes he spins his original out; but the maxim that two wrongs do not make a right is as true in translations as in conduct. If we are to choose between the two, we should say that we preferred Mr. Conington's rhymes and Mr. Pitt's rhetoric.

The sober friskiness of the following lines is a charming contrast to the unheroic gaiety of the parallel passage in 'The Lord of the Isles,' which must be familiar to all our readers.

'Ortygia left, we skim the deeps
By Naxos' Bacchanalian steeps,
Olearos and Donysa green,
And Parian cliffs of dazzling sheen,
Pass Cyclad isles o'er ocean strown,
And seas with many a land thick sown.
The rowers sing merrily as we go,
For Crete, and our forefathers, Ho!'

We make no further extracts from the Third Book, as it is one of those which interest the modern reader least, though its antiquarian learning, and the poetical effect of the succession of short-sighted attempts to disappoint the destiny of Rome, must always have been interesting to Romans. Indeed, this remark applies to the poem as a whole. Æneas was an illuminated transparency to them; Rome shone through him, but the light is quenched for us. It was easy for a Roman to regard the devotion of Dido, or the gallantry of Turnus, with the same grudging eyes, as those with which a modern Catholic regards the courageous sincerity of John Knox, or a modern Protestant regards the scientific heroism of Ignatius Loyola. It was enough that Rome needed their destruction, for the world was made for Rome. Moreover, Dido, whose claims to pity were strongest, had committed a sin against Roman morals, which commentators seldom notice, in contemplating a second marriage, even if the marriage had been as valid as Juno intended, instead of being as worthless as Æneas maintained. And perhaps, assuming Dido to be bound by the same point of honour as Roman ladies, we might be content to abandon her to her fate, if we could only make quite sure that Æneas understood the marriage-law better than Juno.

We pass over the introductory half of the Fourth Book, not caring to complete our list of expressions like,—

> 'Ere wound I thee my woman's fame,'

or

> 'Let nations thus their lives unite,
> And common federation plight.'

Or the rather prosaic attribute of Mercury's wand, which, we are told, 'induces sleep.'

These blemishes are not unredeemed by happier renderings like this:—

> 'No, let him sail; that word in one
> Says all: be thus our errand done.'

Dido's first passionate address to Æneas on his menaced departure, would be very good if Virgil were not better, that is, more passionate; and, after all, to be passionate in easy and uniform couplets is rather a difficult task, even to a Byron.

> 'What! would the wretch his crime conceal,
> And, like a thief, from Carthage steal?
> *Nor present love, nor hand once plight,*
> Nor dying Dido stays your flight?
> Nay, you would sail 'neath winter's sky,
> And through the rush of tempests fly,

Ah cruel! Sure, if lands unknown
Were not to sack, were Troy your own,
E'en for that Troy, your ancient home,
You ne'er would cross yon angry foam.
From me you fly! Ah! let me crave,
By these poor tears, that hand you gave—
Since, parting with my woman's pride,
My madness leaves me nought beside—
By that our wedlock, by the rite
Which, but begun, could yet unite,
If e'er my kindness held you bound,
If e'er in me your joy you found,
Look on this falling house, and still,
If prayer can touch you, change your will.
For you I angered Libyan hordes,
Woke jealous hate in Nomad lords,
Lost Tyrian hearts; for you, the same,
I trampled on my own good name,
That wifely honour, which alone
Had placed me on a starry throne.
Think, think, to whom you make bequest
Of dying Dido, gentle guest!
Since fate but that cold name allows
To him who once I called my spouse.
Why should I live to see my town
By my fierce brother battered down,
Or e'en myself a captive led
To Moor Iarbas' bridal-bed?
Ah! had I, ere you chose to rove,
Ta'en from your arms some pledge of love,
Some child Æneas to recall
Your face, and gambol in my hall,
The sire had cheered me in the son,
Nor had I seemed so all undone!'

The third line is a little pedantic in its precision; one can fancy Queen Elizabeth wooing in such a style, but not Queen Dido; and Moor Iarbas is an objectionable Latinism. 'Dying Dido,' we suppose, must sound pathetic to Mr. Conington, as he repeats it twice. Æneas' reply cannot be interesting in any version, but

'Your favours count,
I question not the vast amount,'

is a harsher and clumsier beginning than was necessary. Dido's next speech is better given by Symmons:—

'Traitor! thou falsely speak'st thy race divine:
Sprung from no goddess, of no hero's line!

Thee Caucasus begot of stony brood!
Hyrcanian tigers suckled thee with blood!
For why should I dissemble? why prolong
The courtesy of speech for greater wrong?
Touch'd with my love, did once his eyes incline?
Heaved he one sigh, or dropp'd one tear with mine?
Of which dire ill shall I complain the first?
Which wrong upbraid, as sharpest and the worst?
My wrongs—now, now injustice reigns above,
Great Juno heeds not, or Saturnian Jove.
Nowhere is faith! Wreck'd, indigent, undone,
The man I raised—placed madly on my throne:
Drew to my ports his fleet, dispersed and lost;
Rescued from death his famine-smitten host.
But now—ah me! the Furies fire my brain!
Now speaks Apollo—now the Lycian fane!
Now Jove's own herald, through the aërial way,
Bears the great Father's mandate—to betray!
Such cares, forsooth, the realms above infest;
And break the terror of celestial rest!
Go! I detain thee not,—thy pleas are good!
Go! and through storms be Italy pursued!
Go! o'er the billows seek thy promised realm!
But oh! may storms disperse, and billows whelm.'

Now let us hear Professor Conington:—

'No goddess bore you, traitorous man:
No Dardanus your race began:
No—'twas from Caucasus you sprung,
And tigers nursed you with their young.
Why longer wear the mask, as though
I waited for some heavier blow?
Heaved he one sigh at tears of mine?
Moved he those hard impassive eyne?
Did one kind drop of pity fall
At thought of her who gave him all?
What first, what last? Now, now I know
Queen Juno's self has turned my foe:
Not e'en Saturnian Jove is just:
No faith on earth, in heaven no trust.
A shipwrecked wanderer up and down,
I made him share my home, my crown:
His shattered fleet, his needy crew
From fire and famine's jaws I drew.
Ah, Furies whirl me! now divine
Apollo, now the Lycian shrine,
Now heaven's own herald comes, to bear
His grisly mandate through the air!

Ay, Gods above ply tasks like these:
Such cares disturb their life of ease.—
I loathe your person, scorn your pleas.
Go, seek your kingdom o'er the foam,
Hunt with the winds your Latian home.'

The next stage of her passion is, in the original, one of the most beautifully described, though there is something languid in the elegance of Professor Conington's translation of it. But the concluding scene is almost perfect:—

'Then, maddening over crime, the queen,
With blood-shot eyes, and sanguine streaks
Fresh painted on her quivering cheeks,
And warming o'er with death foreseen,
Through inner portals wildly fares,
Scales the high pile with swift ascent,
Takes up the Dardan sword, and bares,
Sad gift, for different uses meant.
She eyed the robes with wistful look,
And, pausing, thought awhile and wept:
Then pressed her to the couch, and spoke
Her last good night or e'er she slept.
"Sweet relics of a time of love,
When fate and heaven were kind,
Receive my life-blood, and remove
These torments of the mind.
My life is lived, and I have played
The part that Fortune gave,
And now I pass, a queenly shade,
Majestic to the grave.
A glorious city I have built,
Have seen my walls ascend,
Chastised for blood of husband spilt,
A brother, yet no friend.
Blest lot! yet lacked one blessing more,
That Troy had never touched my shore."
Then, as she kissed the darling bed,
"To die! and unrevenged!" she said,
"Yet let me die: thus, thus I go
Exulting to the shades below.
Let the false Dardan feel the blaze
That burns me pouring on his gaze,
And bear along, to cheer his way,
The funeral presage of to-day."'

There is scarcely a single false note throughout, except, perhaps, that 'exulting' is an exaggerated rendering of 'juvat.' In the description of the Sibyl's prophetic throes, Mr. Conington had the precedent of Scott to guide him, in the last prophecy

of Constance in 'Marmion;' and the involuntary blessing of the Abbot, in 'The Lord of the Isles;' and he recalls what is best in his model:—

'Within the mountain's hollow side
A cavern stretches high and wide:
A hundred entries thither lead;
A hundred voices thence proceed,
Each uttering forth the Sibyl's rede.
The sacred threshold now they trod:
"Pray for an answer! pray! the God,"
She cries, "the God is nigh!"
And as before the doors in view
She stands, her visage pales its hue,
Her locks dishevelled fly,
Her breath comes thick, her wild heart glows,
Dilating as the madness grows,
Her form looks larger to the eye,
Unearthly peals her deep-toned cry,
As breathing nearer and more near,
The God comes rushing on his seer,
"So slack," cries she, "at work divine?
Pray, Trojan, pray! not else the shrine
Its spell-bound silence breaks."'

The speech of Æneas is less successful, and his first quatrain—

'Phœbus, who ever hadst a heart
For Ilium's woe to feel,
Who guided Paris' Dardan dart
True to Achilles' heel,'

has much of the prosaic dexterity, the creeping neatness of the expiring ballad style, and the rest of the speech is tedious.

The theological discourse of Anchises is very fairly rendered, though we wish that Mr. Conington had preserved Mr. Tennyson's beautiful rendering of 'Marmoreo æquore,' but the reader shall judge for himself:—

'Know first, the heaven, the earth, the main,
The moon's pale orb, the starry train,
Are nourished by a soul,
A bright intelligence, which darts
Its influence through the several parts
And animates the whole.
Thence souls of men and cattle spring.
And the gay people of the wing,
And those strange shapes that ocean hides
Beneath the smoothness of his tides.

A fiery strength inspires their lives,
An essence that from heaven derives,
Though clogged in part by limbs of clay,
And the dull "vesture of decay,"
Hence wild desires and grovelling fears,
And human laughter, human tears:
Immured in dungeon-seeming night,
They look abroad, yet see no light.
Nay, when at last the life has fled,
And left the body cold and dead,
E'en then there passes not away
The painful heritage of clay;
Full many a long contracted stain
Perforce must linger deep in grain.
So penal sufferings they endure
For ancient crime, to make them pure:
Some hang aloft in open view
For winds to pierce them through and through,
While others purge their guilt deep-dyed
In burning fire or 'whelming tide.
Each for himself, we all sustain
The durance of our ghostly pain;
Then to Elysium we repair,
The few, and breathe this blissful air:
Till, many a length of ages past,
The inherent taint is cleansed at last,
And nought remains but ether bright,
The quintessence of heavenly light.
All these, when centuries ten times told
The wheel of destiny have rolled,
The voice divine from far and wide,
Calls up to Lethe's river side,
That earthward they may pass once more,
Remembering not the things before,
And with a blind propension yearn
To fleshly bodies to return.'

After the Sixth Book, Virgil seems to fall to a lower poetical level, though the last six books are relieved by many beautiful episodes. We extract the conclusion of the sortie of Nisus and Euryalus:—

'Fierce Volscens storms, yet finds no foe,
Nor sees the hand that dealt the blow,
Nor knows on whom to fly.
"Your heart's warm blood for both shall pay,"
He cries, and on his beauteous prey
With naked sword he sprang.
Scared, maddened, Nisus shrieks aloud:
No more he hides in night's dark shroud,
Nor hears the o'erwhelming pang:

"Me, guilty me, make me your aim,
O Rutules! mine is all the blame;
He did no wrong, nor e'er could do;
That sky, those stars attest 'tis true;
Love for his friend too freely shown,
This was his crime, and this alone."
In vain he spoke; the sword fierce driven,
That alabaster breast had riven.
Down falls Euryalus, and lies
In death's enthralling agonies:
Blood trickles o'er his limbs of snow;
"His head sinks gradually low;"
Thus, severed by the ruthless plough,
Dim fades a purple flower:
Their weary necks so poppies bow,
O'erladen by the shower.
But Nisus on the midmost flies,
With Volscens, Volscens in his eyes;
In clouds the warriors round him rise,
Thick hailing blow on blow:
Yet on he bears, no stint, no stay;
Like thunderbolt his falchion's sway:
Till as for aid the Rutule shrieks
Plunged in his throat the weapon reeks:
The dying hand has reft away
The life-blood of its foe.
Then, pierced to death, asleep he fell
On the dead breast he loved so well.'

The pathetic address of Mezentius to his horse, after the death of Lausus, is given as follows by Mr. Conington:—

'Long have we lived, if long the date
Conferred on aught of mortal state:
Now Rhœbus, will we twain to-day
A glorious trophy bear away,
The Trojan's arms and severed head,
In vengeance for my Lausus dead:
Or if the vantage be denied,
We twain will perish side by side:
For ne'er I ween, my gallant horse,
Will soul so generous stoop perforce
To other mastery, nor deign
That Trojan hand should sleek thy mane.'

Here Dryden is excellent:—

'O Rhœbus, we have lived too long for me
(If life and long were terms that could agree);

> This day thou either shalt bring back the head
> And bloody trophies of the Trojan dead;
> This day thou either shalt revenge my woe
> For murder'd Lausus, on his cruel foe;
> Or, if inexorable fate deny
> Our conquest, with thy conquer'd master die;
> For, after such a lord, I rest secure,
> Thou wilt no foreign reins, or Trojan load, endure.'

The debate between Drances and Turnus represents the high-water mark of the two best translators of the Æneid, if not of Virgil's poetry, but it is far too long to be extracted at full. These lines, from the speech of Turnus, strike us as unusually spirited:—

> 'Then roll your thunders—'tis your way—
> And call me coward, as well you may;
> You, whose strong hand has heaped the plain
> With trophied trunks and hills of slain.
> What glowing bravery can do,
> We twain may try, myself and you:
> No distant foemen wait our call:
> Behold them mustered round the wall!
> Come, march we on to meet the foe!
> What, Drances linger? why so slow?
> Has Mars found out no worthier seat
> Than that loose tongue, those flying feet?
> Confess defeat? I routed? I?
> Who dares retail that slanderous lie?'

This is as vigorous as Dryden, and neater and more scholarly, but as the speech proceeds, Dryden seems carried on by the subject, while his competitor slackens his pace, till at the end we are ready to ask, with Mr. Conington, 'whether Dryden did not close the question of translating Virgil a hundred and seventy years ago?' Perhaps he was right in answering, No. His poem may be pitched in a lower key than Dryden, it may have more weaknesses and paler beauties; but those weaknesses and those beauties are different. A person who had read Dryden and Conington would have a completer idea of Virgil than one who had read Dryden only. In fact a person who had read Conington alone, would have a better idea of the *direction* of Virgil's greatness, than a person who had read Dryden alone, though the latter would have a better idea of its extent and power and beauty. The former might probably think Virgil rather tame, but occasionally downright and able, but he would be sure that he was refined and frequently pathetic; the latter might think Virgil rough and careless,

but he would be sure that he was a great poet. Then the mere fact that a scholar, with Mr. Conington's prestige, should have translated the Æneid at all, will give a fresh impulse to Virgilian study. Symmons did good service in his day, though his book was costly, and he himself was, as he tells us, a friendless and obscure old man, while Mr. Conington commands and deserves a more extensive audience. Many will be indebted to him for refreshing their recollection of Virgil; not a few for their only acquaintance with the first of Latin poets. Some will thank him, as we do, for leading us to practise the pastime of his schoolboy days, in a detailed comparison of Dryden, Pitt, and Symmons, with each other and with him. But, on the whole, lovers of sound scholarship will, we suspect, unite in the hope that translations, at least from such quarters, should cease; and in the respectful suggestion that the Professor of Latin at Oxford would do more for classical literature by following the example recently set by the Professor of Latin at Cambridge than by persevering in the composition of translations. In the present state of our literature especially, such work as the work in Mr. Monro's edition of *Lucretius* is a far greater gain than any translation,—even though that translation represented the original far more perfectly than the version of Mr. Conington.

Art. VI.—Empedocles.

The figure of Empedocles of Agrigentum, when seen across the twenty-three centuries which separate us from him, presents perhaps a more romantic appearance than that of any other Greek philosopher. This is owing in a great measure to the fables which invest his life and death with mystery, to his reputation for magical power, and to the wild sublimity of some of his poetic utterances. Yet, even in his lifetime, and among contemporary Greeks, he swept the stage of life like a great tragic actor, and left to posterity the fame of genius as a poet, a physician, a patriot, and a philosopher. The well-known verses of Lucretius are enough to prove that the glory of Empedocles increased with age, and bore the test of time. Reading them, we cannot but regret that poems which so stirred the reverent enthusiasm of Rome's greatest singer have been scattered to the winds, and that what we now possess of their remains affords but a poor sample of their unimpaired magnificence.

Nothing is more remarkable about Empedocles than his versatility and comprehensiveness. Other men of his age were as nobly born, as great in philosophic power, as distinguished for the part they bore in politics, as celebrated for poetic genius, as versed in mystic lore, in medicine, and in magic arts. But Parmenides, Pythagoras, Pausanias, and Epimenides could claim honour in but one, or two at most, of these departments. Empedocles united all, and that too, if we may judge by the temper of his genius and the few legends handed down to us about his life, in no ordinary degree. He seems to have possessed a warmth and richness of nature which inclined him to mysticism and poetry, and gave a tone of peculiar solemnity to everything he did or thought or said. At the same time, he was attracted by the acuteness of his intellect to the metaphysical inquiries which then were agitating the western colonies of Greece, while his rare powers of observation enabled him to make discoveries in the then almost unexplored region of natural science. The age in which he lived had not yet thrown off the form of poetry in philosophical composition. Even Parmenides had committed his austere theories to hexameter verse. Therefore, the sage of Agrigentum was easily led to combine his splendid powers on the production of one great work, and made himself a poet among philosophers, and a philosopher among poets, without thereby impairing his claims to rank highly both as a poet and also as a thinker among the most distinguished men of Greece.

But Empedocles had not only deeply studied metaphysics, nature, and the arts of verse; whatever was mysterious in the world around him, in the guesses of past ages, and in the forebodings of his own heart, possessed a powerful attraction for the man who thought himself inspired of God. Having embraced the Pythagorean theories, he maintained the fallen state of men, and implored his fellow-creatures to purge away the guilt by which they had been disinherited and exiled from the joys of heaven. Thus he appeared before his countrymen not only as a poet and philosopher, but also as a priest and purifier. Born of a wealthy and illustrious house, he did not expend his substance merely on horse-racing and chariots, by which means of display his ancestors had gained a princely fame in Sicily, but, not less proud than they had been, he shod himself with golden sandals, set the laurel crown upon his head, and, trailing robes of Tyrian purple through the streets of Agrigentum, went attended by a crowd of serving-men and reverent admirers. He claimed to be a favourite of Phœbus, and rose at length to the pretension of divinity. His own words show this, gravely spoken, with no vain assumption, but a certainty of honour well deserved :—

'Friends who dwell in the great city hard by the yellow stream of Acragas, who live on the Acropolis, intent on honourable cares, harbours revered of strangers, ignorant of what is vile; welcome: but I appear before you an immortal god, having overpassed the limits of mortality, and walk with honour among all, as is my due, crowned with long fillets and luxuriant garlands. No sooner do I enter their proud prosperous cities than men and women pay me reverence, who follow me in thousands, asking the way to profit, some desiring oracles, and others racked by long and cruel torments, hanging on my lips to hear the spells that pacify disease of every kind.'

We can hardly wonder that some of the fellow-citizens of Empedocles were jealous of his pretensions, and regarded him with suspicious envy and dislike, when we read such lines of lofty self-exaltation. Indeed, it is difficult for men of the nineteenth century to understand how a great and wise philosopher could lay claim to divine honours in his own lifetime. This arrogance we have been accustomed to associate with the names of a Caligula and Claudius. Yet when we consider the circumstances in which Empedocles was placed, and the nature of his theories, our astonishment diminishes. The line of demarcation between this world and the supernatural was then but vague and undetermined. Popular theology abounded in legends of gods who had held familiar intercourse with men, and of men

who had been raised by prowess or wisdom to divinity. The pedigrees of all distinguished families ended in a god at no great distance. Nor was it then a mere figure of speech when bards and priests claimed special revelations from Apollo, or physicians styled themselves the children of Asclepius. Heaven lay around the first Greeks in their infancy of art and science; it was long before the vision died away and faded into the sober daylight of Aristotelian philosophy. Thus when Empedocles proclaimed himself a god, he only stretched beyond the usual limit a most common pretension of all men learned in arts and sciences. His own speculations gave him further warrant for the assumption of the style of deity. For he held the belief that all living souls had once been demons or divine spirits, who had lost their heavenly birthright for some crime of impurity or violence, and yet were able to restore themselves to pristine splendour by the rigorous exercise of abstinence and expiatory rites. These rites he thought he had discovered; he had prayed and fasted; he had held communion with Phœbus the purifier, and received the special favour of that god, by being made a master in the arts of song, and magic, and healing, and priest-craft. Was he not therefore justified in saying that he had won again his rights divine, and transformed himself into a god on earth? His own words tell the history of his fall:—

'Woe to me that I did not fall a prey to death before I took the cursed food within my lips! . . . From what glory, from what immeasurable bliss, have I now sunk to roam with mortals on this earth!'

Again he says—

'For I have been in bygone times a youth, a maiden, and a flowering shrub, a bird, yea, and a fish that swims in silence the deep sea.'

From this degraded state the spirit gradually emerges. Of the noblest souls he says—

'Among beasts they become lions dwelling in caverns of the earth upon the hills, and laurels among leafy trees, . . . and at last prophets, and bards, and physicians, and chiefs among the men of earth, from whence they rise to be gods supreme in honour, . . . sitting at banquets with immortal comrades, in their feasts unvisited by human cares, beyond the reach of fate and wearing age.'

Empedocles, by dint of pondering on nature, by long penance, by the illumination of his intellect and the coercion of his senses, had been raised before the natural term of life to that high honour, and been made the fellow of immortal gods. His language upon this topic is one of the points in which we can trace an indistinct resemblance between him and some of the

Indian mystics. There is, however, no reason to suppose that Asiatic thought had any marked or direct influence on Greek philosophy. It is better to refer such similarities to the working of the same tendencies in the Greek and Hindu minds.

To those who disbelieved his words he showed the mighty works which he had wrought. Empedocles, during his lifetime, was known to have achieved marvels, such as only supernatural powers could compass. More than common sagacity and ingenuity in the treatment of natural diseases, or in the removal of obstacles to national prosperity, were easily regarded by the simple people of those times as the evidence of divine authority. Empedocles had devised means for protecting the citizens of Agrigentum from the fury of destructive winds. What these means were, we do not know; but he received in consequence the title of κωλυσανεμας, or warder-off of winds. Again, he resuscitated, from the very jaws of death, a woman who lay senseless and unable to breathe, long after all physicians had despaired of curing her. This entitled him to be regarded as a master of the keys of life and death; nor did he fail to attribute his own power to the virtue of supernatural spells. But the greatest of his achievements was the deliverance which he wrought for the people of Selinus from a grievous pestilence. It seems that some exhalations from a marsh having caused this plague, Empedocles, at his own cost, cut a channel for two rivers through the fen, and purged away the fetid vapours. A short time after the cessation of the sickness, Empedocles, attired in tragic state, appeared before the Selinuntians at a banquet. His tall and stately figure wore the priestly robe; his brazen sandals rang upon the marble as he slowly moved with front benign and solemn eyes; beneath the sacrificial chaplet flowed his long Phœbean locks, and in his hand he bore a branch of bay. The nobles of Selinus rose; the banquet ceased; all did him reverence, and hailed him as a god, deliverer of their city, friend of Phœbus, intercessor between angry Heaven and suffering men. Coins were struck at Selinus to commemorate their liberation from the scourge. Two of them remain, on each of which Empedocles is represented standing by the side of Phœbus in his car. Phœbus is shooting with the bow of pestilence; but Empedocles restrains his hand, and curbs the horses, which seem rushing forward on the pathway of destruction.

Closely connected with his claim to divinity was the position which Empedocles assumed as an enchanter. Gorgias, his pupil, asserts that he often saw him at the magic rites. Nor are we to suppose that this wizardry was a popular misinterpretation of his real power as a physician and philosopher. It is far more

probable that Empedocles himself believed in the potency of incantations, and delighted in the ceremonies and mysterious songs by which the dead were recalled from Hades, and secrets of the other world wrung from unwilling fate. We can form to ourselves a picture of this stately and magnificent enchanter, convinced of his own supernatural ascendency, and animated by the wild enthusiasm of his ardent nature, alone among the mountains of Girgenti, or by the sea-shore, invoking the elemental deities to aid his incantations, and ascribing the forebodings of his own poetic spirit to external inspiration or the voice of gods. In solitary meditations he had wrought out a theory of the world, and had conceived the notion of a spiritual God, one and unseen, pure intellect, an everlasting omnipresent power, to whom might be referred those natural remedies that stopped the plague, or cured the sick, or found new channels for the streams. The early Greek philosophers were fond of attributing to some 'common wisdom' of the world, some animating soul or universal intellect, the arts and intuitions to which they had themselves attained. Therefore, with this belief predominating in his mind, it is not strange that he should have trusted to the divine efficacy of his own spells, and have regarded the results of observation as a kind of supernatural wisdom. To his friend Pausanias the physician he makes these lofty promises, 'Thou shalt learn every kind of medicines that avert diseases and the evils of old age. Thou too shalt curb the fury of untiring winds, and when it pleases thee thou shalt reverse thy charms and loose avenging storms. Thou shalt replace black rain-clouds with the timely drought that men desire, and when the summer's arid heat prevails thou shalt refresh the trees with showers that rustle in the thirsty corn. And thou shalt bring again from Hades the life of a departed man.' Like the Pythagoreans whom he followed, he seems to have employed the fascination of music in effecting cures; it is recorded of him that he once arrested the hand of a young man about to slay his father, by chanting to the lyre a solemn soul-subduing strain. The strong belief in himself which Empedocles possessed, inspired him with immense personal influence, so that his looks, and words, and tones, went farther than the force of other men. He compelled them to follow and confide in him, like Orpheus, or like those lofty natures which in every age have had the power of leading and controlling others by innate supremacy. That Empedocles tried to exhibit this ascendency, and to heighten its effect by gorgeous raiment and profuse expenditure, by public ceremonies and mysterious modes of life, we need not doubt. There was much

of the spirit of Paracelsus in Empedocles, and vanity impaired the simple grandeur of his genius. In every age of the world's history there have been some such men—men in whom the highest intellectual gifts are blent with weakness inclining them to superstitious juggleries. Not content with their philosophical pretensions or with poetical renown, they seek a more mysterious fame, and mix the pure gold of their reason with the dross of idle fancy. Their very weakness adds a glow of colour, which we miss in the whiter light of more purely scientific intellects. They are men in whom two natures cross—the poet and the philosopher, the mountebank and the seer, the divine and the fortune-teller, the rigorous analyst and the retailer of old wives' tales. But none have equalled Empedocles, in whose capacious idiosyncrasy the most opposite qualities found ample room for co-existence, who sincerely claimed the supernatural faculties which Paracelsus must have only half believed, and who lived at a time when poetry and fact were indistinguishably mingled, and when the world was still absorbed in dreams of a past golden age, and in rich foreshadowings of a boundless future.

We are not, therefore, surprised to read the fantastic legends which involve his death in mystery. Whatever ground of fact they may possess, they are wholly consistent with the picture we have formed to ourselves of the philosopher, and prove at least the superstition which had gathered round his name. One of these legends has served all ages as a moral of the futility of human designs, and the just reward of inordinate vanity. Every one who knows the name of Empedocles has heard that, having jumped into Etna in order to conceal the time and manner of his death, and thus to establish his divinity, fate frustrated his schemes by casting up his brazen slippers on the crater's edge. According to another legend, which resembles that of the death of Romulus, of Œdipus, and other divinized heroes, Empedocles is related to have formed one of a party of eighty men who assembled to celebrate by sacrifice his restoration of the dying woman. After their banquet they retired to sleep. But Empedocles remained in his seat at table. When morning broke, Empedocles was nowhere to be found. In reply to the questions of his friends, some one asserted that he had heard a loud voice calling on Empedocles at midnight, and that, starting up, he saw a light from heaven and burning torches. Pausanias, who was present at the sacrificial feast, sent far and wide to inquire for his friend, wishing to test the truth of this report. But piety restrained his search, and he was secretly informed by heavenly messengers that Empedocles had won what he had sought, and that divine honours should be paid to him. This story rests on

the authority of Heraclides Ponticus, who professed to have obtained it from Pausanias. The one legend we may regard as the coinage of his foes, the other as a myth created by the superstitious admiratoin of his friends.

We have hitherto regarded Empedocles more in his private and priestly character than as a citizen. Yet it was not to be expected that a man so nobly born, and so remarkable for intellectual power, should play no public part in his native state. A Greek could hardly avoid meddling with politics even if he wished to do so, and Empedocles was not one to hide his genius in the comparative obscurity of private life. While he was still a young man, Theron, the wise tyrant of Agrigentum, died, and a powerful aristocracy endeavoured to enslave the state. Empedocles manfully resisted them, supporting the liberal cause with vehemence, and winning so much popular applause that he is even reported to have received and refused the offer of the kingly power. By these means he made himself many foes among the nobility of Agrigentum; it is also probable that suspicion attached to him for trying to establish in his native city the Pythagorean commonwealth, which had been extirpated in South Italy. That he loved spiritual dominion we have seen; and this he might have hoped to acquire more easily by taking the intellectual lead among citizens of equal rights, than by throwing in his lot with the aristocratic party, or by exposing himself to the dangers and absorbing cares of a Greek tyrant. At anyrate, it is recorded that he impeached and procured the execution of the leaders of the aristocracy, thus rescuing the liberty of his nation at the expense of his own security. After a visit to Peloponnesus Empedocles returned to Agrigentum, but was soon obliged to quit his home again by the animosity of his political enemies. Where he spent the last years of his life, and died, remains uncertain.

It remains to estimate the poetical and philosophical renown of Empedocles. That his genius was highly valued among the ancients appears manifest from the panegyric of Lucretius. Nor did he fail to exhibit the versatility of his powers in every branch of poetical composition. Diogenes Laertius affirms that forty-three tragedies bearing his name were known to Hieronymus, from whom he drew materials for the life of Empedocles. Whether these tragedies were really written by the philosopher, or by another Sicilian of the same name, admits of doubt. But there is no reason why an author, possessed of such varied and distinguished talents as Empedocles, should not have tried this species of composition. Xenophanes is said to have composed

tragedies; and Plato's youthful efforts would, we fondly imagine, have afforded the world fresh proofs of his commanding genius, had they escaped the flames to which they were condemned by his maturer judgment. No fragments of the tragedies of Empedocles survive; they probably belonged to the class of semi-dithyrambic compositions, which prevailed at Athens before the days of Æschylus, and which continued to be cultivated in Sicily. Some of the lyrical plays of the Italians —such, for instance, as the Orfeo of Poliziano—may enable us to form an idea of these simple dramas. After the tragedies, Diogenes makes mention of political poems. These we may refer to the period of the early manhood of Empedocles, when he was engaged in combat with the domineering aristocracy, and when he might have sought to spread his liberal principles through the medium of gnomic elegies, like those of Solon or Theognis. The fragments of the καθαρμοι sufficiently display his style of earnest and imperious exhortation to make us believe that at a time of political contention he would not spare this powerful instrument of persuasion and attack. In the next place, we hear of an epic poem on the invasion of Greece by Xerxes, which Empedocles is said to have left unfinished, and which his sister or his daughter burned with other papers at his death. The great defeat of the Medes took place while Empedocles was still a youth. All Hellas had hung with breathless expectation on the event of Marathon and Salamis. The fall of Xerxes brought freedom and relief from terrible anxiety, not only to the towns of Attica and Peloponnese, but also to the shores of Sicily and Italy. It is not therefore unlikely that the triumph which excited Simonides and Æschylus to the production of masterpieces, may have stirred the spirit of the youthful patriot of Agrigentum. Another composition of Empedocles, which perished under his sister's hands, was a Proemium to Apollo. The loss of this poem is deeply to be regretted. Empedocles regarded himself as specially protected by the god of song and medicine and prophetic insight. His genius would therefore naturally take its highest flight in singing praises to this mighty patron. The hymn to Zeus, which has been ascribed to Cleanthes, and some of the pseudo-Orphic declamations, may give us an idea of the gravity and enthusiasm which Empedocles would have displayed in treating so stirring a theme. Of his remaining works we possess fragments. The great poem on Nature, the Lustral Precepts, and the Discourse on Medicine, were all celebrated among the ancients. Fortunately, the inductions to the first and second of these have been preserved, and some lines addressed to Pausanias may be regarded as form-

ing the commencement of the third. It is from these fragments, amounting in all to about 470 lines, that we must form our judgment of Empedocles, the poet and the sage.

That Empedocles was a poet of the didactic order is clear from the nature of his subjects. Even as early as the time of Aristotle, critics disputed as to whether poems written for the purpose of scientific instruction deserved the name of poetry. In the *Poetics*, Aristotle says,—οὐδὲν δὲ κοινόν ἐστιν Ὁμήρῳ καὶ Ἐμπεδοκλεῖ πλὴν τὸ μέτρον· διὸ τὸν μὲν ποιητὴν δίκαιον καλεῖν, τὸν δὲ φυσιόλογον μᾶλλον ἢ ποιητήν. The title φυσιόλογος was of course generic, and might have been claimed by Heraclitus, on the strength of his prose writings, no less than by Empedocles. Lucretius, in the exordium to his poem, argues for the utility of disguising scientific precepts under the more attractive form of art; we sweeten the lips of the vessel that contains bitter medicine, in order to induce the child to take it readily. And not only had Empedocles this reason in his favour for the use of verse, but also, at the age in which he lived, it was still a novelty to write prose at all; nor would it have been consistent with his theories of inspiration, and with the mysticism he professed, to abandon the poetic form of utterance. He therefore thought and wrote hexameters as naturally as the scientific men of the present day think and write their sentences and paragraphs, until the discourse is formed into a perfect whole. Allowing, then, for the subject of his poem, Empedocles was regarded by antiquity as first among the Greek didactic singers, though he competed with Parmenides for this distinction, and was placed upon a level with Lucretius. Lactantius mentions them both together in his definition of this kind of poetry. And Aristotle, in another treatise, now lost, but quoted by Diogenes, praises the artistic genius of the philosopher in these words: Καὶ Ὁμηρικὸς ὁ Ἐμπεδοκλῆς καὶ δεινὸς περὶ τὴν φράσιν γέγονε μεταφορικός τε ὢν καὶ τοῖς ἄλλοις περὶ τὴν ποιητικὴν ἐπιτεύγμασι χρώμενος. The epithet Ὁμηρικὸς is very just; for not only is it clear that Empedocles had studied the poems of Homer with care, and had imbibed their phraseology, but he also possessed a genius akin to that of Homer in love of simplicity, in fidelity to nature, in unimpeded onward flow of energetic verse.

The simile of the girl playing with a water-clock, by which Empedocles illustrates his theory of respiration, and that of the lantern, which serves to explain his notion of the structure of the eye, are both of them Homeric in their unadorned simplicity and vigour. Again, such epithets as these, πολυαίματον for the liver, ἰλάειρα for the moon, ὀξυβελὴς for the sun, πολυστέφανος for majesty, θεμερῶπις for harmony, and the constant repetition of

θεοὶ δολιχαίωνες τιμῆσι φέριστοι, have the true Homeric ring. Like Homer, he often chooses an epithet specific of the object which he wishes to describe, but not especially suited to the matter of his argument. Thus πολυκλαύτων γυναίκων occurs when there was no particular reason to fix the mind upon the tearfulness of women. But the poetic value of the passage is increased by the mind being thus carried away from the logical order of ideas to a generality on which it can repose. At other times, when this is necessary, the epithets are as accurately descriptive as those of a botanist or zoologist: ἐν κόγχαισι θαλασσονόμοις βαρυνώτοις . . . . λιθορρίνων τε χελωνῶν, for example. Again, Empedocles gives loose to his imagination by creating bold metaphors; he calls the flesh σαρκῶν χιτών, and birds πτεροβάμονας κύμβας. Referring to his four elements, he thus personifies their attributes: 'Fiery Zeus, and Herè, source of vital breath, and Aidoneus, and Nestis with her tears.' At another time he speaks of 'earth, and ocean with his countless waves, and liquid air, the sun-god and ether girdling round the universe in its embrace.'

The passage too in which he describes the misery of earth rises to a sublime height. It may well have served as the original of Virgil's celebrated lines in the sixth Æneid:—

'I lifted up my voice, I wept and wailed, when I beheld the unfamiliar shore. A hideous shore on which dwell murder, envy, and the troop of baleful destinies, wasting corruption, and disease. Through Até's meadow they go wandering up and down in gloom. There was the queen of darkness, and Heliope with her far-searching eyes, and bloody strife, and mild-eyed peace, beauty and ugliness, swiftness and sloth, and lovely truth, and insincerity with darkling brows. Birth too and death, slumber and wakefulness, motion and immobility, crowned majesty and squalid filth, discordant clamour and the voice of gods.'

We can understand by these passages how Empedocles not only was compared with Homer by Aristotle, but also with Thucydides and Æschylus by Dionysius of Halicarnassus, who speaks of his 'austere harmony' (αὐστηρὰν ἁρμονίαν). The conciseness of his argumentative passages, the breadth of his treatment, and the dryness of his colouring, to quote the terms of painting, resemble the style of Thucydides, while his bold figures and gloomy grandeur are like those of Æschylus. Plutarch, in the treatise on the genius of Socrates, speaks of the style of Empedocles at large, both as regards his poems and his theories, as μάλα βεβακχευμένη. This seems a contradiction to the 'austere harmony' of Dionysius. But there are passages which justify the title. This exordium, for instance, savours of prophetic fury:—

'It stands decreed by fate, an ancient ordinance of the immortal gods, established from everlasting, ratified by ample oaths, that, when a spirit of that race, which has inherited the length of years divine, sinfully stains his limbs with blood, he must go forth to wander thrice ten thousand years from heaven, passing from birth to birth through every form of mortal mutability, changing the toilsome paths of life without repose, even as I now roam, exiled from God, an outcast on this world, the bondman of insensate strife.

'Alas, ill-fated race of mortals, thrice accursed! from what dire struggles and what groans have ye been born! The air in its anger drives them to sea, and ocean spues them forth upon the solid land, earth tosses them into the flames of the untiring sun, he flings them back again into the whirlwinds of the air; from one to the other are they cast, and all abhor them.'

And the following adjuration has a frantic energy, to modern readers almost laughable but for its indubitable gravity,—

'Wretches, thrice wretches, keep your hands from beans!'

or, again, with reference to the abomination of animal food:—

'The father drags along his dear son changed in form, and slays him, pouring prayers upon his head. But the son goes begging mercy from his maniac sire. The father heeds him not, but goads him on, and, having slaughtered him, prepares a cursed meal. In like manner sons take their fathers, and children their mothers, and tearing out the life devour the kindred flesh. Will ye not put an end to this accursed slaughter? Will ye not see that ye consume each other in blind ignorance of soul?'

We do not wonder that the poems of Empedocles were pilfered by oracle-mongers in after ages.

But besides these passages, there are some of a milder beauty which deserve high praise for their admirable power of suggesting the picture which the poet wishes to convey. The following lines describe the golden age of old, to which Empedocles looked back with melancholy longing:—

'There every animal was tame and familiar with men, both beasts and birds, and mutual love prevailed. Trees flourished with perpetual leaves and fruits, and ample crops adorned their boughs through all the year. Nor had these happy people any Ares or mad Uproar for their god; nor was their monarch Zeus, or Cronos, or Poseidon, but Queen Cypris. Her favour they besought with pious symbols and with images, and fragrant essences, and censers of pure myrrh, and frankincense, and with brown honey poured upon the ground. The altars did not reek with bullocks' gore.'

It may sound ridiculous to say so, yet Empedocles resembles

Shelley in the quality of his imagination and in many of his utterances. The lines just quoted, the belief in a beneficent universal soul of nature, the hatred of animal food, the love of all things moving or growing on the face of earth, the sense of ancient guilt and present evil, are all, allowing for the difference of centuries, and race, and education, points by which the Greek and the English poets meet in a community of nature. Two more quotations illustrative of the poetical genius of Empedocles may be quoted. In the first he describes the nature of God, invisible and omnipresent. In the second he asserts the existence of a universal law. They both are remarkable for simplicity and force and elevation of style:—

'Blessed is the man who hath obtained the riches of the wisdom of God; wretched is he who hath a false opinion about things divine.

'He (God) may not be approached, nor can we reach him with our eyes, or touch him with our hands. No human head is placed upon his limbs, nor branching arms; he has no feet to carry him apace, nor other parts of man: but He is all pure mind, holy, and infinite, darting with swift thought through the universe from end to end.'

'This law binds all alike, and none are free from it: the common ordinance which all obey prevails through the vast spaces of wide-ruling air and the illimitable fields of light in endless continuity.'

The quotations which have served to illustrate the poetical genius of Empedocles, have also exhibited one aspect of his philosophy—that in which he was connected with the Pythagoreans. It is quite consistent with the whole temper of his intellect that he should have been attracted to the semi-Oriental mysticism which then was widely spread through Grecian Italy and Sicily. After the dissolution of the monastic commonwealth which Pythagoras had founded, it is probable that refugees imbued with his social and political theories scattered themselves over the adjacent cities, and from some of these men Empedocles may have imbibed in early youth the dreamlike doctrines of an ante-natal life, of future immortality, of past transgression and the need of expiation, of abstinence, of the bond of fellowship which bound man to his kindred sufferers upon the earth. It is even asserted in one legend that the philosopher of Agrigentum belonged to the Pythagorean Society, and was expelled from it for having been the first to divulge its secrets. In after life these theories were developed by Empedocles after his own fashion, and received a peculiar glow of poetic colouring from his genius. There is no need to suppose that he visited the East and learned the secrets of Gymnosophists. A few

Pythagorean seeds sown in his fruitful soil sprang up and bore a hundred-fold. Referring to the exordium of his poem on Nature, and to the lines in which he describes the unapproachable Deity, we find that Empedocles believed in a pristine state of happiness, in which the 'Demons,' or 'gods, long of life, supreme in honour,' dwelt together enjoying a society of bliss. Yet this state was not perfect, for some of these immortals stained their hands with blood, and some spoke perjury, and so sin entered in and tainted heaven. After such offence the erring spirit, by the fateful, irrevocable, and perennial law of the divine commonwealth, had to relinquish his heavenly throne and wander 'thirty thousand seasons' from his comrades. In this period of exile he passed through all the changes of metempsychosis. According to the rigorous and gloomy conception of Empedocles, this change was caused by the hatred of the elements; earth, air, fire, and water refusing to retain the criminal, and tossing him about from one to the other without intermission. Thus, he might be a plant, a bird, a fish, a beast, or a human being in succession. But the transmigration did not depend upon mere chance. If the tortured spirit, environed, as he was, by the conflicting shapes and contradictory principles and baleful destinies which crowded earth—'the over-vaulted cave,' the 'gloomy meadow of discord,' as Empedocles in his despair described our globe—could yet discover some faint glimmering of the truth, seize and hold fast some portion of the heavenly clue, then he might hope to re-ascend to bliss. Instead of abiding among birds, and other unclean beasts, and common plants, his soul passed into the bodies of noble lions, and mystic bay-trees, or became a bard, a prophet, a ruler among men, and lastly rose again to the enjoyment of undying bliss. Throughout these wanderings death was impossible. Empedocles laughed at the notion of birth and death; he seems to have believed in a fixed number of immortal souls, capable of any transformation, but incapable of perishing. So that when his spirits, falling earthward, howled at the doleful aspect of the hideous land, the very poignancy of their grief consisted in that bitter thought of Dante's, 'questi non hanno speranza di morte'—in that thought which the makes the Buddhist welcome annihilation. It has been already hinted that, although the soul by its forced exile lost not only happiness but also knowledge, yet the one might be in part retrieved, and the other toilsomely built up again in some degree by patient observation, prayer, and magic rites. On this point hinges the philosophy of Empedocles. It is here that his mysticism and his science are united into one system. In like manner Plato's philosophy rests

upon the doctrine of Anamnesis, and is connected with the vision of a past beatitude, the tradition of a miserable fall, and the prospect of a possible restoration. Empedocles, like Parmenides and Xenophanes in their disquisitions on the eternal Being, like Plato in his references to the Supreme Idea, seems to have imagined that the final Essence of the universe was inapproachable, and to have drawn a broad distinction between the rational and sensual orders, between the World as cognizable by pure intellect, and the world as known through the medium of human Sense. The lines of Empedocles upon God, which have been already quoted, are similar to those of Xenophanes: both philosophers assert the existence of an unknown Deity pavilioned in dense inscrutability, yet not the less to be regarded as supreme and omnipresent and omnipotent—as God of gods, as life of life. How to connect this intuition with the speculations of Empedocles is difficult. The best way seems to be to refrain from identifying his eloquent description of the unknown God with the Sphærus of his scientific theories, and to believe that he regarded the same universe from different points of view at different times, as if in moments of high exaltation he obtained a glimpse of the illimitable Being by a process of ecstatic illumination, while in more ordinary hours of meditation his understanding and his senses helped him to obtain a knowledge of the actual phenomena of this terrestrial globe. His own language confirms this view of the case:—

'Weak and narrow,' he says, 'are the powers implanted in the limbs of men; many the woes that fall on them and blunt the edge of thought; short is the measure of the life in death through which they toil; then are they borne away, like smoke they vanish into air, and what they dream they know is but the little each hath stumbled on in wandering about the world, yet boast they all that they have learned the whole—vain fools! for what *that* is no eye hath seen, no ear hath heard, nor can it be conceived by mind of man. Thou, then, since thou hast fallen to this place, shalt know no more than human wisdom may attain.

'But, O ye gods, avert the madness of those babblers from my tongue, and cause the stream of holy words to issue from my hallowed lips. And thee, great Muse of Memory, maiden with the milk-white arms, I pray to thee to teach me things that creatures of a day may hear. Come from the House of Holiness, and bring to me her harnessed car.'

Here we see plainly set forth the impossibility of mortal, fallen intellects attaining to a perfect knowledge of the Universe, the impiety of seeking such knowledge, or pretending to have found it; and, at the same time, the limitations under which

true science remains within the reach of human beings. *How* this science may be reached, he tells us in some memorable lines, probably supposed to issue from the lips of the Muse whom he invokes :—'But come, search diligently, and discover what is clear in every realm of sense, . . . check the conviction of thy senses, and judge by reason what is evident in every case.'

Thus the senses, although feeble and erring guides, are, after all, the gates to knowledge; and their reports, when tested by the light of reason, form the data for human speculation. The senses, resident in the limbs, are composed in certain proportion of the four elements, which also constitute the earth. Therefore, between the frame of man and the world outside him, there is a community of substance, whereby he is enabled to know. Ὅμοια ὁμοίοις γιγνώσκεται is the foundation of our philosopher's theory of knowledge. The reasonable soul, being that immortal part of man whereon depends his personal identity, whether he take the shape of plant or animal, receives and judges the results of sensation. This theory, it will be observed, has a kind of general similarity to that of Parmenides. Empedocles draws a marked difference between the province of the senses and of the reason, and inveighs against the impotence of the former. Again, he speaks of the real being of the world as pure and perfect intellect, and at the same time elaborately describes the universe as it appears to human sense and understanding. But here the likeness ends. Parmenides has no mysticism, and indulges in no theology. He believes in the actual truth of his rational ontology, and sneers at the senses. 'Thy fate it is,' he says, 'all mysteries to learn, both the unswerving mind of truth that wins a sure assent, and the vain thoughts of men, in which no certainty abides. But, baseless as they are, these also shalt thou learn; since thou must traverse every field of knowledge, and discern the fabric of the dreams of men.' His ontology is just as elaborate as his physics, and he evidently considers its barren propositions of more value than any observations on astronomy or physiology. Empedocles, on the other hand, quite despaired of ontology, and gave all his mind to explanations of the physical universe—how it came to be, and what laws governed its alternations,—believing all along that there was a higher region of pure intellect beyond the reach of his degraded soul. 'Here we see in a glass darkly, but then face to face.' In this respect he resembled Xenophanes more than Parmenides. Xenophanes had said, 'No man hath been, nor will ever be, who knows for certain all about the gods, and everything of which I speak

for should one publish the most sure and settled truth, yet even he cannot be said to *know;* opinion is supreme in all things.' Empedocles belonged more to the age behind him than to that which followed; and his extensive knowledge of nature belonged to his artistic rather than to his scientific temperament.

Yet, allowing for the march of human progress during twenty-three centuries, we are bound to hold much the same language as Empedocles regarding the limitations of knowledge. We have, indeed, infinitely extended our observation of phenomena; we have gained fuller conceptions of the Deity and of the destinies of man. But the plummet which he threw into the bottomless abyss of science has yet found no bottom, and the circle which it made by striking on the surface of the illimitable ocean has grown and grown, but yet has touched no shore on any side. Like him, we still speak of an unapproachable God, utterly beyond the reach of human sense and intellect; like him, we still content ourselves with receiving the reports of our senses, comparing and combining them by means of our understanding, and thus obtaining some conception of the universe in which we live. If we reject the light of Christianity, the guesses which we form about a future world are less vague than those of Empedocles, but founded on no surer scientific basis; the God we worship still remains enveloped in symbols; we still ascribe to him, if not a human form, at least the reason, partialities, and passions of mankind. Indeed, in this respect, the sage of Agrigentum stood unconsciously upon the platform which only our profoundest thinkers have attained. He felt the awe of the Unseen—he believed in the infinite Being,—but he refused to dogmatize about his attributes, confining his own reason to the phenomenal universe which he strove in every way to understand, and to employ for the good of his race. Empedocles was greater than most of his contemporaries, for he neither believed it possible to explain the whole mystery of the world, nor did he yet reject the notion of there being a profound mystery. He steered clear between the Parmenides and Democritus of his own day—between the Spinoza and the materialist of modern speculation. Herein the union of philosophy and poetry, of thought and feeling, in his nature, gave the tone to all his theories. We must not, however, in our praise forget that all these problems appeared in a far more simple form to the Greeks of that age than to ourselves, and were therefore more hastily and lightly answered. Between the ontology of Parmenides and of Hegel what a step there is! What meagre associations gather round the one; what kaleidoscopic brilliance environs the other!

Remembering, therefore, in what light Empedocles regarded his own speculations, we may proceed to discuss them more in detail. We shall find that he deserved a large portion of that praise which Bacon rather whimsically lavished on the pre-Socratic philosophers, to the disadvantage of the mightier names of Plato and Aristotle.

The poem on Nature is addressed to Pausanias the physician, who was a son of Anchitus of Agrigentum, and a special friend of Empedocles. To Pausanias, the philosopher begins his instruction with these words:—'First learn what are the four chief roots of everything that is: fiery Zeus, and Herè, source of vital breath, and Aidoneus, and Nestis with her tears, who is the fount of moisture in the world.' Thus Empedocles, after the fashion of the Pythagoreans, allegorized his four elements. In other passages he calls them 'fire, water, earth, and air's immeasurable height;' or 'earth and ocean with his countless waves and liquid air, the sun-god and ether girdling the universe in its embrace;' or again, 'Hephæstus, rain, and radiant ether;' or lastly, 'light, earth, heaven, and ocean.' It will be seen that he designated his elements sometimes by mythological titles, sometimes by abstract terms, and sometimes by selecting one or other natural object—such as the sun, the air, the ocean—in which they were most manifest. It is well known that Empedocles was the first philosopher to adopt the four elements, which, since his day, continued to rule supreme over natural science, until modern analysis revealed far simpler and broader bases. Other speculators of the Ionian sect had maintained each of these four elements,—Thales the water, Anaximenes the air, Heraclitus the fire, and perhaps (but this rests on no sure evidence), Pherecydes the earth. Xenophanes had said:—'Of earth and water are all things that come into existence.' Parmenides had spoken of dark and light, thick and subtle, substances. Each of these fundamental principles are probably to be regarded not as pure fire, or pure water, or pure air, but as universal elements differing in rarity, and typified according to the analogical necessities of language, by means of some familiar object. The four elements of Empedocles appear to have been suggested to him, partly by his familiarity with contemporary speculation, and partly by his observation of Nature. They held their ground so long in scientific theory, because they answered so exactly to a superficial view of the world. Earth with everything of a solid quality, water including every kind of fluid, fire that burns or emits light, air that can be breathed, appear to constitute an exhaustive division of the universe. Of the eternity of these four primal substances, according to the Empedoclean theory,

there is no doubt. The philosopher frequently reiterates his belief in the impossibility of an absolute beginning or ending, though he acquiesces in the popular use of these terms to express the scientific conceptions of dissolution and recombination.

These elements, then, were the material part of the world according to Empedocles. But inherent in them, as a tendency is inherent in an organism, and yet separable in thought from them as the soul is separable from the body, were two conflicting principles of equal power, love and discord. Love and discord by their operation wrought infinite changes in the universe: for it was the purpose of love to bind the elements together into a compact, smooth, motionless globe, and of discord to separate them one from another, and keep them distinct in a state of mutual hostility. When, therefore, either love or discord got the upper hand, the phenomenal universe could not be said to exist, but in the intermediate state was a perpetual order of growth and decay, composition and dissolution, whereby the world, as we behold it, came into existence. This intermediate state, *das Werdende*, τὸ γιγνόμενον καὶ ἀπολλύμενον, was φύσις, or Nature: the conflicting energies of love and discord formed the pulses of its mighty heart, the systole and diastole of its being, the one power tending to life, the other power to death, the one pushing all the elements forward to a perfect unity of composition, the other rending them apart. To the universe when governed by love in supremacy Empedocles gave the name of σφαῖρος, which he also called a god. This σφαῖρος answered to the Eleatic ἕν, while the disjointed elements subservient to the force of strife corresponded to the Eleatic πόλλα. Thus the old Greek antagonism of Good and Evil, One and Many, Love and Hatred, Being and Not-being, were interpreted by Empedocles. He looked on all that is, *das Werdende*, as transitory between two opposite and contradictory existences.

Again, according to his system, the alternate reigns of love and discord succeeded one another at fixed intervals of time; so that, from one point of view, the world was ceaselessly shifting, and from another point of view, was governed by eternal and unalterable Law. Thus he reconciled the Heraclitean flux and the Parmenidean immobility by a middle term. Each of the elements possessed a separate province, had separate functions, and was capable of standing by itself. To fire it would seem that the philosopher assigned a more active influence than to any of the other elements, so that a kind of dualism may be recognised in his Universe between this ruling principle and the more passive ingredients of air, earth, and water. The influence of love and harmony kept them joined and interpenetrated, and so mingled that the different objects which we see around us

had their origin. Empedocles professed to understand the proportions of these mixtures, and measured them by Pythagorean rules of arithmetic. Thus everything subsists by means of transformation and mixture; absolute beginning and ending are impossible.

Such, briefly stated, is the theory of Empedocles. The following passage may be quoted to show how the phenomenal Universe comes into being under the influence of love:—

'When strife has reached the very bottom of the seething mass, and love assumes her station in the centre of the ball, then everything begins to come together, and to form one whole—not instantaneously, but different substances come forth, according to a steady process of development. Now, when these elements are mingling, countless kinds of things issue from their union. Much, however, remains unmixed, in opposition to the mingling elements, and these malignant strife still holds within his grasp. For he has not yet withdrawn himself altogether to the extremities of the globe; but part of his limbs still remain within its bounds, and part have passed beyond. As strife, however, step by step, retreats, mild and innocent love pursues him with her force divine; things which had been immortal instantly assume mortality; the simple elements become confused by interchange of influence. When these are mingled, then the countless kinds of mortal beings issue forth, furnished with every sort of form, —a sight of wonder.'

In another passage this development is compared to the operation of a painter mixing his colours, and forming with them a picture of various objects. Discord is said to have made the elements immortal, because he kept them apart, and would willingly have preserved their separate qualities, whereas love mixes them together, breaks up their continuity, and confuses their kinds. What Empedocles exactly meant by Sphærus is hard to understand; nor do we know how far he intended Chance to operate in the formation of the Universe. He often uses such expressions as these, 'So they chanced to come together,' and describes the amorphous condition of the first organisms in a way that makes one think he fancied a perfectly chaotic origin. Yet 'the art of Aphrodite,' 'so Cypris ordained their form,' are assertions of designing intelligence. In fact, we may well believe that Empedocles, in the infancy of speculation, was led astray by his double nomenclature. When talking of Aphrodite, he naturally thought of a person ruling creation; when using the term 'Love,' he naturally conceived an innate tendency, which might have been the sport of chance in a great measure. It also appears probable that, when Empedocles used the terms 'Chance' and 'Necessity,' he referred to some inherent quality in the elements themselves, whereby they grew together

under certain laws, and that the harmony and discord which ruled them in turn, were forces aiding and preventing their union.

To understand the order of creation, we may begin by imagining the sphere, which, in the words of Empedocles, 'by the hidden bond of harmony is stablished, and rejoices in unbroken rest . . . in perfect equipoise, of infinite extent, it stays a a full-orbed sphere rejoicing in unbroken rest.' Love now is omnipotent; she has knit all the elements into one whole; Discord has retreated, and abides beyond the globe. But soon his turn begins: he enters the sphere, and 'all the limbs of the god begin to tremble.' Now the elements are divided one from the other—ether first, then fire, then earth, then water from the earth. Still the elements are chaotic; but wandering about the spaces of the world, and 'permeating each the other's realm,' they form alliances, and tend to union. Love is busy no less than Discord. The various tribes of plants and animals appear at first in a rudimentary and monstrous condition: 'many heads sprouted up without necks, and naked arms went wandering forlorn of shoulders, and solitary eyes were straying destitute of foreheads.' Still the process of seething and intermingling continued; 'when element with element more fully mixed, these members fell together by haphazard . . . many came forth with double faces and two breasts, some shaped like oxen with a human front, others, again, of human race with a bull's head; and some were mixed of male and female parts.' Unfortunately, the lines in which he describes the further progress of development have been lost, and we do not know how the interval between chaos and order was bridged over in his system. Only with reference to human beings he asserts that in the earliest stage they were produced in amorphous masses, containing the essence, as it were, of both male and female. That after the separation of these masses into two parts, each part yearned to join its tally. And therefore sprang the passion of desire in human hearts. This theory has been worked out by Plato artistically in the *Symposium*. Also, with reference to the formation of the phenomenal universe, he says that earth formed the basis of all hard and solid substances preponderating in the shells of fish, and so on. Bones were wrought of earth and fire and water, 'marvellously jointed by the bonds of Harmony.' It is needless to follow Empedocles through all his scattered fancies, to show that he knew that the night was caused by the earth intercepting the sun's rays, or that he thought the sun reflected heaven's fire like a mirror, or that he placed the intellect in the blood, and explained respiration by a theory of pores, and the eyesight by imagining a fire shut

up within the pupil. The fragments we possess are too scanty to allow of our obtaining a perfect view of his physical theory all we gather from them is that Empedocles possessed more acquired and original knowledge than any of his contemporaries.

It may appear from what has been said about his system that Empedocles was at best a great Eclectic. But this is not entirely the case. If he deserves the name of Eclectic, he deserves it in the same sense as Plato, though it need not be said how infinitely inferior, as an original thinker, he is to Plato. Empedocles was deeply versed in all the theories, metaphysical, cosmogonical, mystical, and physiological, of his age. He viewed from a high station all the problems, intellectual, social, and moral, which then vexed Greece. But he did not pass his days in a study or a lecture-room, nor did he content himself with expounding or developing the theories of any one master. He went abroad, examined nature for himself, cured the sick, thought his own thoughts, and left an impress on the constitution of his native state. In his comprehensive mind all the learning he had acquired from men, from books, from the world, and from reflection, was consolidated into one system, to which his double interest for mysticism and physics gave a double aspect. He was the first in Greece to reconcile Eleatic and Heraclitean speculations, the puzzle of plurality and unity, the antagonism of good and evil, in one theory, and to connect it with another which revealed a solemn view of human obligations and destinies, and required a life of social purity and self-restraint. The misfortune of Empedocles as a philosopher consisted in this—that he succeeded only in resuming the results of contemporary speculation, and of individual research in a philosophy of indisputable originality, without anticipating the new direction which was about to be given to human thought by Socrates and Plato. He closed one period,—the period of poetry and physical theories and mysticism. The period of prose, of logic, and of ethics was about to begin. He was the last of the great colonial sages of Greece. The Hellenic intellect was destined henceforth to centre itself at Athens.

Art. VII.—The Loss of Calais.

One of the most striking events of the reign of Queen Mary the Catholic was the loss of Calais. It has perhaps tended, as much as the persecution of the Reformers, towards making her name unpopular. As the latter has been ascribed to her bloody fanaticism, so has the loss of the last remnant of her English possessions on French soil been ascribed to her carelessness and incapacity. In order to re-establish the English nation in public estimation, the whole of the blame has been laid on one unpopular person, who, in the case of Calais, was certainly the least faulty of all. Even in modern times, and in popular histories, this false view of the case is still held. Documents have been brought forward, some of which—such as the account of John Highfield[1]—emanated from the very persons accused of having, by their treason or cowardice, caused the loss of the place. Others—such as, for example, a letter from Lord Wentworth of the 29th December 1557—have been entirely misrepresented.[2] Most of the documents, however, relating to these events, have hitherto remained unknown. But by these it appears that the Queen, far from being unmindful of the defence of her realm, did her duty faithfully, although she was unhappily nearly the only person who performed it.

Calais was not lost because no steps had been taken to provide against an attack, or because no orders had been given for its speedy relief; for as soon as the Queen was apprised of the projected inroad of the French, she ordered troops to proceed thither. It was not lost because England had been embroiled in a war with France, for Henry II. had, during the peace in 1553, and the spring of 1557, made several unsuccessful attempts to surprise Calais. Nor was it lost because Philip, the titular King of England, and its ally, did not succour it in time. For Philip was bound by those much-praised treaties which Stephen Gardiner had imposed upon him, not to allow any foreign troops to enter into English fortresses.

Calais was lost because all the orders given for its defence were unavailing. Never since the Conquest had the real power of England descended so low. A series of unpopular Governments, and of violent internal dissensions, had undermined the morality of the individual, and consequently the strength of the country. Patriotism was only known under the form of suspicion of any stranger. Loyalty was shown by asking for

[1] Printed in the Hardwicke Papers, but lost in the original.
[2] Froude's *History of England.*

grants and pensions; courage and activity by plotting and intriguing. Calais was lost because Englishmen whose creed or interest differed from that of the actual Government were ever and anon on the alert to give information to the French, and to urge them to undertake an attack against England. It was lost because the English garrison fought badly; because the very man to whom the defence was intrusted persisted in giving false information to the Queen, and doing nothing to prepare against an attack. It was lost because Lord Wentworth, the deputy, who had long before been warned by the Flemish governors of the danger threatening his charge, took no notice of these warnings. Did his patriotism make him suspect any information coming from the officers of Philip? or did he thoroughly despise a foe who had lost all battles in the preceding campaign? Did he overrate his resources and the valour of his troops?

The French had indeed met with heavy losses during the year 1557. In Italy, the Duke of Guise had been baffled by the brave defence of Ciritella, by the talent of Marc Antonio Colonna, and the pedantic slowness of Alva. He had been forced to retire, leaving Pope Paul IV. at the mercy of his enemy. On the northern frontier of France things had gone even worse. After the disastrous battle fought near St. Quentin, that place, together with Ham and Chatelet, had been forced to surrender. So terrible had been these blows that the Spanish army, in the month of November, had approached within forty miles of Paris without being opposed.[1]

But it was too late to undertake any serious attack or siege. The season was too far advanced, and the money collected for the campaign had been spent.[2] The greater part of the German troops were therefore dismissed.[3] Strong garrisons were put into the newly conquered fortresses, while the frontier of Flanders, which was considered to be in comparative security, was left with nothing beyond the ordinary guard.'[4]

While Philip was forced, by want of money, to abandon any further attack, the French were recovering from the blow they had received. Money was flowing fast into the royal exchequer.[5] The Duke of Guise, who had returned from Italy, and who had received from Henry II. the command of the troops, was thus enabled to form a new army. Swiss and German mercenaries were joining his standard at Compiègne, while a portion of his veteran army was hastening thither from

[1] Brussels, Archives du Royaume, Pap. d'Etat. 66, fol. 338.
[2] Simancas, Est. 514, fol. 148.
[3] Paris, Arch. de l'Emp. K. 1490 pl. 117, 120.
[4] *Ibid.* K. 1490, No. 99.
[5] *Ibid.* K. 92, No. 1, k.

Piedmont.[1] The Spanish Generals were well aware of these armaments, but thought at first that they were directed against one of the new conquests, which, they knew, were perfectly able to resist. Indeed, this seems to have been for a few days the plan of Guise.[2] But his spies gave him such information as made it appear highly improbable that he could conquer any of the towns.

On the other hand, the attack upon Calais, which had been already meditated in June, might this time prove successful. Calais was a fair prize: a large and flourishing town, an almost impregnable fortress, the last remnant of English possessions on French soil. Its conquest would outweigh the loss of St. Quentin. From the bishop of Dax, from the French ambassador returning from England, and from Senarpont, governor of Boulogne, as well as from the English refugees, Guise had received an account of the position and fortification of the English Pale. It was not encouraging. The natural difficulty of the soil, he was told, had been much increased by art. The triangular tract of low marshy land was divided into two halves by the river Hammes running from south to north between deep morasses. At the northern angle of the Pale the fortress of Guisnes was situated, on the river the castles of Hammes and Newneham which defended the passage. At this latter place the road from Boulogne crossed the water by a long and narrow bridge. Below it, the river, widening into a broad channel, turned to the right and ran nearly westward, being divided from the sea by a narrow range of sand-hills. On the right bank, a mile below Newneham, lay the castle and town of Calais, while opposite, on the extreme point of the sand-hills, stood the castles of Rysbank defending the entrance of the harbour. Sluices were constructed at Newnehambridge, by means of which, as Guise was told, the whole of the Pale could be inundated, and the passage of the Hammes rendered impossible.

These fortresses and castles (of Guisnes, Hammes, Newneham, Calais, and Rysbank) formed a system of defences so extensive that it was impossible to enclose the whole. An enemy, however, who could not cross the Hammes between the different forts, could not blockade any one separately. Provisions and succour could be received at all hours as long as the line remained unbroken. These fortifications were certainly formidable enough. But, on the other hand, Guise full well knew that the men to whom their defence was intrusted were deficient in military qualities, and that little, if anything, would be done to succour them. The days were gone when English

[1] Paris, Arch. de l'Emp. K. 92, No. 1, h. o. [2] *Ibid.* K. 92, No. 7.

archers could strike terror into the ranks of the French. From the beginning of the century perpetual and general wars had taken place on the Continent. The inexperienced foot militia of the early days of Charles and Francis had grown into standing armies of old and trained soldiers. The few companies of clumsy gendarmes had lost their importance on being superseded by numerous regiments of German pistoliers or mounted arquebusiers. The use of firearms had become general, nearly a third of the foot and half of the horse being provided with them, and the bow had been rendered an antiquated weapon. The superior quality of the arms then in use, together with the increased number of troops, had also altogether changed the mode of fighting. It had made tactics a complicated art. Drill and discipline had become as necessary as courage; officers could no longer be merely brave leaders without experience, nor soldiers nothing but brave men unused to war. But while all continental soldiers had progressed with the times, while the armies of Henry II. and Philip consisted of well-drilled veterans led by experienced officers, the English had not only remained stationary, but had even lost their warlike qualities. Unaccustomed to danger, they were perpetually over-rating it. Mistrusting their own skill, they did not look upon their fellow-soldiers as being better than themselves. Without confidence in their officers, who could not even enforce the ordinary discipline, they lacked all those powerful links which made a company of Spanish or German veterans feel and act as one man. With the exception of the Sappers, who year after year had fought under the banner of Charles and Philip, they were therefore considered as nothing but a raw militia. English foot-soldiers received sixpence a day, that is to say, fourteen shillings a month of four weeks,[1] while Italian and Spanish were paid twenty-four to thirty shillings (four to five ducats), and Swiss and Germans from thirty to thirty-six shillings and sixpence (five to six ducats), besides numerous double pays. But though the English received only half the pay given to Italians, Philip steadily refused to receive more of them than the stipulated number, when the Earl of Pembroke was to succour him in the summer of 1557,[2] looking on them as nearly useless. And so they proved. For, when the Earl took the field at the head of his four thousand men, his troops were so unaccustomed to carry even their weapons, that they were harassed by their weight, and, not being able to make any of the customary marches,[3] they did not arrive until two days after the battle of St. Quentin. Philip's opinion was shared by the English

[1] Br. Mus. Cal. e. v. 30.

[2] Simancas, Est. Leg. 514, fol. 159.

[3] *Ibid.* fol. 153, 154, 150.

Council and the English captains. When, in January 1558, a plan was proposed, emanating from Count Egmont,[1] according to which ten thousand men were to occupy Etaples and besiege Montrueil, while Philip was to keep the French army at bay, thereby cutting off Calais from France, the English Council replied that, if they sent English troops, twenty thousand would be wanted instead of ten thousand, and that even these would not be able to bear the hardships of an early campaign.[2]

To such troops, numbering from seventeen to eighteen hundred men,[3] the defence of the Pale was intrusted. They were placed under the command of the deputy of Calais, Thomas Lord Wentworth, a man of small capacity, of no energy, of great arrogance and conceit, and withal unmindful of his duties.

The inadequacy of the troops, and certain hopes of treason, held out to him by the English refugees, outweighed in the mind of Guise the strength of the fortifications. Abandoning his former plans, he therefore sent Marshal Strozzi, in the disguise of a peasant, to examine the defences of the Pale. The Marshal, on his return, confirmed his opinion that an attack upon Calais had some chance of success.

The expedition was now resolved upon. The army was collected at Abbeville, and every preparation was made for a long and energetic siege.[4] The account commonly given of the subsequent events is absolutely incorrect. It is generally said that Lord Wentworth was taken by surprise, and that a vague rumour of the movements of the French first reached Guisnes on the 22d of December.[5] This is false, for Wentworth had received the first warnings in the middle of December.[6] On the 18th, Noyelle governor of New Hesdin sent him a detailed account of what was to take place a fortnight later.[7] Noyelle had received it from a most trustworthy and able spy, a gentleman of some rank in the French army. Two officers, well acquainted with the Duke's plans, had, with great imprudence, talked them over in his presence.

The French army, which by that time had become very numerous, was to march straight upon Calais. There the French intended (as they afterwards did) to attack Newneham and Rysbank at the same time. Having won these outposts, and having blockaded the place on every side, they intended

[1] Brussels, A. d. R., P. d'Etat 67, fol. 63.
[2] Br. Mus. Tit. B. ii. fol. 58.
[3] R. O. Foreign, Mary, vol. ii. fol. 677.
[4] Brussells, A. d. R., L. d. Seign. vol. 18, fol. 375.
[5] Froude, *History of England.*
[6] Brussels, A. d. R., L. d. Seigneurs, vol. 18, fol. 375, 385, 385; vol. 19, fol. 17.
[7] *Ibid.* fol. 405, 406.

to bring up their cannon on the sand-hills in front of the town, and to batter the wall from across the harbour, which they hoped would be fordable at low water, so that they might storm the town by wading across. Details, respecting the state of the fortifications, and the preparations made to attack them, were given in such a way as to make it clear to any unbiassed mind that the taking of Calais was really the end the French had in view. As appears from the indorsement of the letter from the spy, Noyelle sent a copy of it to Lord Wentworth, as well as to Bugnicourt and to the Duke of Savoy. While the latter fully understood the importance of the warning, and ordered reinforcements to hasten to St. Omer and Gravelines,[1] Lord Wentworth took no notice of it. Though the report showed a perfect knowledge of all the feeble points of Calais, though every assertion contained in it was rendered highly probable by the reasons given for it, still, emanating as it did from a Fleming, it failed to disturb the sluggish nature of the deputy. He protested that all these preparations were intended against some Flemish fortress. He boasted that the French, if they dared attack him, would fare the worse for it. But he did nothing to make his deeds as good as his words, he took no steps to ascertain whether the intelligence given to him was true, none to provide, at all hazards, for the better defence of the weak points indicated in the report. He did not even apprise Lord Grey, who commanded at Guisnes, of the news he had received. Lord Grey had, however, on the 22d, himself received a copy of the spy's report, sent him by Bugnicourt, the governor of Artois. He wrote immediately to the Queen, sending her the intelligence he had just received.[2] His own scouts, he said, had given him no such information, still Bugnicourt was a man to whose warnings it would be well to attend. The places, he thought, would not long resist such an attack if reinforcements were not sent over; Guisnes his peculiar charge he would do his best to defend. Lord Wentworth meantime let slip the precious hours which might have served to prepare for a defence. But on the 26th, tidings of such a nature arrived, and were so generally known, that to remain deaf any longer to such intelligence would have been sheer treason. One of the English spies, who was at Abbeville on the 23d, had there seen the French army, which was to move the following day towards the Pale.[3] Lord Wentworth sent over this intelligence to the Queen, but full eight days had elapsed since he had received the first intimation from Noyelle. A council of war was summoned for the 27th at Calais, in which it was judged to be highly

[1] Brussels, A. d. R., L. d. Seigneurs, vol. 19, fol. 426.
[2] R. O. Mary, Foreign, vol. ii. fol. 695. [3] *Ibid.* fol. 697.

probable that the French would attack the English Pale without delay. It was therefore decided that the open country, together with the lesser forts, should be abandoned, and that only Guisnes, Hammes, Newneham, Rysbank, and Calais itself should be defended. It was presumed that the actual number of troops would for a time be sufficient for this service. In the report of the sitting sent to the Queen, she was, however, urged to send over at once some officers of experience with more men, ammunition, and provisions, in order, if possible, to defend the whole country.[1] The Queen, who has been so often accused of indifference and mismanagement in this affair, had, as soon as she received Grey's letter of the 22d, ordered that four hundred men, previously meant to be reduced in number, should be retained.[2] She now ordered the Duke of Rutland, together with some other gentlemen, to proceed to Calais, and to concert with the Lords Wentworth and Grey the necessary measures for its defence.[3] At the same time orders were issued to levy soldiers, and send them to the coast, ships for their passage were prepared, everything, in short, was done to provide for the safety of the Pale. Had it not been for the folly of Wentworth, Calais would still have been saved. But after the return of Grey to Guisnes, the deputy once more relapsed into his state of criminal carelessness. He wrote, on the 29th, privately to the Queen,[4] saying that, although the French army was, in fact, already at Boulogne,[5] still he could assure her positively that it had encamped before New Hesdin, forty miles from Calais. The latter town was therefore no longer in immediate danger; and the Queen, upon so positive an assurance, recalled the appointment of Rutland, and countermanded the levying of troops. Some fifty men only who had already arrived at Dover were to go to Calais.[6]

It is impossible to ascertain from what source Lord Wentworth received this intelligence, as he himself, strange to say, does not mention it. He added, however, a statement, which a man knowing the country, as he must have done, ought to have clearly seen was false intelligence, though the Queen, not being acquainted with the details, was unable to detect the contradiction. He said that at Ardres the French were baking bread. The victualling of Ardres was always a matter of considerable difficulty for the French; it would have been folly, therefore, to have really believed, what he pretended to do, namely, that the bread was destined for an army some thirty miles in the rear, which could more easily have obtained

[1] R. O. Mary, Foreign, vol. ii. 698.
[2] *Ibid.* fol. 696.
[3] *Ibid.* fol. 699.
[4] *Ibid.* 700.
[5] Paris, Bibl. Imp.
[6] Ms. Fr. 4738.

victuals out of France. It was, on the contrary, a most certain sign that the French forces were intended shortly to arrive in the vicinity of Ardres and of the Pale. A suspicion may be entertained that Wentworth seized upon the very first rumour suiting his wishes, perhaps not mentioning the source of his information, for fear of causing it to be discredited. Be this as it may, after this most fatal letter he resumed his old course. The repeated warnings which Vandervile, governor of Gravelines, gave him, he treated with contempt.[1] Even when Lord Grey wrote on the afternoon of the 31st that the French army had been descried marching from Ambleteuse towards the Pale,[2] and when a body of French horse, having turned the Sandgate, had already appeared before Rysbank, the deputy could not be brought to prepare for his defence. He sent, on the contrary, an express to Gravelines to contradict most vehemently Grey's intelligence. The French, he said, were still at Neufchatel, some thirty miles away, and would attack Hesdin, Reuty, or Lillers. He added, superciliously, that he had better spies than the Flemings, promising to inform Vandervile if anything were to happen.[3]

The messenger arrived at Gravelines late in the evening. At midnight the governor, with a heavy heart, was writing to Bugnicourt respecting the warnings of Grey and the perverse folly of Wentworth, when he was startled by an ominous sound.[4] Instead of the merry peals which should usher in a new year, the alarm-bells rang throughout the Pale to announce the arrival of the French. Guise's army had on the 31st reached the frontier.[5] The Duke, as the chronicle pretends, waited until the year 1557 had entirely closed. So fatal had it been to France that he feared it would bring misfortune upon himself to begin his undertaking before it had ended its course. At midnight, however, his vanguard crossed the border, and appeared before the outer forts which cover the heights between the Sandgate on the sea-shore and Guisnes.

It was impossible to deny any longer that the French army was at hand. Wentworth this time communicated the news, not to the Queen, but to Philip, to whom hitherto he had not written.[6] He briefly stated that the whole of the French army was at hand. He begged it might be looked after. He gave, however, no details whatever, nor did he state his opinion that this force was intended for more than one of the occasional inroads which the French were wont to make in the open land of the Pale. He did not ask for reinforcements, nor propose any

[1] Brussels, A. d. R., L. d. S. vol. 18, fol. 452.
[2] *Ibid.* fol. 461.
[3] *Ibid.* fol. 460.
[4] *Ibid.* fol. 458.
[5] Paris, Bibl. Imp. Mss. Fri. 4738.
[6] Simancas, Estado, Leg: 1810, fol. 10.

means for the relief of the place. So long as this was not done, he must have known Philip would do nothing. The King was far too narrow-minded and scrupulous a man to act so entirely against the treaty of 1554, as to allow his troops or officers to enter into an English fortress without having been previously released in some way or other from his promise. Thus Wentworth, who does not seem to have written to the Queen, was left on the first of January to cope with the French, with only the garrison he had at Calais and the other fortresses of the Pale.

The French at first did not press hard upon the English. Their cannon and ammunition, their baggage, and even part of their troops, were still in their rear. Small skirmishes only ensued during the 1st and 2d of January, in which Sir Anthony Aucher, the marshal of Calais, behaved with great gallantry, and took the place of the lord-deputy, who was nowhere to be seen. The French were driven back on the causeway leading to Newneham, but they occupied the forts of Sandgate and those of Froithan and Nielles, where they, however, were checked in their further progress, as the sea was let in through Newneham bridge, and Aucher appeared in their front.

This partial success had heightened the conceit of Wentworth. He wrote in high spirits to the Queen, giving her an account of the gallant behaviour of the garrison of Newneham, and telling her how 'right manfully' that of Froithan and Nielles behaved while abandoning their charge without being forced to do so.[1] He had, however, by this time perceived that the French intended a regular siege. He therefore asked for succour both from England and from the King.[2] The latter would probably have proved the most efficient. But it was too late. Besides, Wentworth's letter to Philip was carefully worded. He did not ask directly for succour, but that orders might be given to the governor to send him four hundred Spaniards whenever he should ask for them. Time was thus lost, and the Spaniards never entered the place, as the town was soon afterwards blockaded by superior forces.[3]

During the fight on the causeway before Newneham, the Duke of Guise had, amidst the fire of the English cannon, reconnoitred the defences of Calais. At ten o'clock at night he went on the sand-hills towards Rysbank, to do the same, while some French gentlemen whom he sent into the harbour,

[1] R. O. Mary, Foreign, vol. ii. fol. 711.
[2] Simancas, Est. Leg. 810, fol. 11.
[3] Brussels, A. d. R., L. d. S. vol. xix. fol. 19, 20.

found it fordable at low ebb, opposite the castle and the town.[1] The same night the approaches were made both before Rysbank and Newneham, exactly as the spy had reported a fortnight before. This was a work of considerable difficulty. The causeway which led to Newneham, the only approach to it, was but thirty feet broad, and was flanked on both sides by deep morasses, besides being right under the fire of the bridge. Had the English kept good watch, d'Etrées, master of the Ordnance, and d'Aumale, Guise's brother, who had the command at this point, would not been have able to execute their purpose. But the garrison had been rendered incautious by their fancied triumph of the day. So the French, with little loss, were able to throw up a cover of sandbags, and bring up some cannon. Near the Rysbank the task was as difficult. The soil, a loose sand, afforded no foundation on which to place the cannon. No trenches could be made to protect the men, and the guns, when brought up through nearly a mile of deep sand, right under the fire of the castle and town of Calais, were taken in flank by the latter. But the English were as careless here as at Newneham. Accordingly, through the untiring energy of Peter Strozzi and his men, the cannon were brought up, and at dawn this battery too opened fire on the defences of the English.

At Newneham the garrison was greatly dismayed when the shots of the French cannon, flashing through the greyish twilight of the morning, indicated to them the progress the enemy had been able to make during the night. The Captain Nicholas Alexander, although he had a competent number of men, asked for succour.[2] Lord Wentworth met his demand with a refusal. Though he knew that by the loss of the bridge Calais would be cut off from all succour by land, he ordered the Captain to retire to the town in case he thought that he could not defend the fort.[3] His stupid incredulity had now given way to a pusillanimity as contemptible and as injurious as his former conceit. The courage of the subordinates did not, unhappily, in this case counterpoise the timidity of the chief. The fire of the French cannon had killed one of the English gunners, the rest, unused to war in earnest, were so dismayed, that they abandoned their pieces, though they were twice as numerous and infinitely better posted than those of the French. Alexander, therefore, upon receiving Wentworth's answer, gladly seized the pretext given to him. He spiked the guns, set fire to the stores and houses around, and withdrew, at ten o'clock,

[1] Paris, Bibl. Imp. Mss. Fr. 4738.

[2] Account of John Highfield, Hardwicke Papers, Brussels, A. d. R. Lettres des Seigneurs, vol. xix. fol. 14.

[3] Hardwicke Papers, R. O. Baga de Secretis, xxxviii.

into the town,[1] after having defended for only a little more than two hours an almost impregnable fort, in which no breach whatever had been made. The French, who at first could scarcely believe that the fort had been abandoned, at last occupied the bridge, and poured over their troops to surround the town.

At the Rysbank nearly the same want of energy. The French cannon, more numerous here than at the bridge, had dismounted some of the English pieces.[2] The fire from the town was not kept up, the garrison lost heart, and would no longer man the defences. The tide being so high that retreat was impossible, Harleston, the captain, surrendered at eleven o'clock with a garrison of nearly one hundred and fifty men, and threw himself on the mercy of Guise.[3] Unhappily the high tide had prevented him asking Lord Wentworth's approval, so the unfortunate man was sentenced to death in 1559 for his cowardly behaviour, and executed at Tyburn.[4] Neither of the forts could have been stormed, no breach whatever having been made; both were lost simply by the cowardice of those who had charge of them, and by the pusillanimity of Wentworth. Had either of them held out till night, succour would have arrived, and the fate of Calais would have been averted.

The news of the appearance of Guise's army in the Pale had reached the English Court on the 2d of January. By order of the Queen the Earl of Rutland again set out,[5] and on the 3d, at one o'clock P.M., he took ship at Dover. He was half over, when he was met by the 'Sacre,' an English man-of-war, coming from Calais, and he incautiously permitted his men to converse with those of the 'Sacre.' Discipline was a thing hardly known on board an English ship at that time. The mariners, as soon as they heard of the loss of the Rysbank, refused point-blank to proceed.[6]

On the other hand, Vandervile, though he had as yet received no positive orders, had intended that very night to have introduced into the place three hundred Spanish arquebusiers under Bernardino de Ayala.[7] But immediately after the retreat of Alexander became known to the Duke of Guise, the latter had sent the Prince de la Roche sur Yon, with 6000 foot and 1000 horse to surround the town from the bridge down to the Gravelines shore.

[1] Paris Bibl. Imp. Mss. F. 4738. Brussels, A. d. R., L. d. S. vol. xix. fol. 19, 102.

[2] *Ibid.* fol. 102.

[3] *Ibid.* fol. 15, 19, 20. *Ibid.* vol. xxi. fol. 15. Paris, Bibl. Imp. Mss. Fr. 4738.

[4] R. O. Baga de Secretis, xxxix.

[5] R. O. Mary, Foreign, 708, 709, 710.

[6] *Ibid.* 712.

[7] Brussels, A. d. R., L. d. S. 19. fol. 14. fol. 17.

An able and brave commander might still have defended and held the town, which was of great strength. The garrison consisted, notwithstanding the loss of 150 men in the Rysbank, of 700 to 800 soldiers, besides a considerable number of mariners, armed burghers, and peasants. With guns, ammunition, and victuals, the place was sufficiently provided. But Lord Wentworth's pusillanimity and apathy disheartened the men, and prevented any measure from being taken for a better defence. The same night the Duke of Guise rode round the town, reconnoitring it. He found it of enormous strength. Towards the west, south, and east it was surrounded by deep morasses or open tracts of loose sand, and defended by strong walls and deep ditches. Towards the north lay the harbour, the castle standing at the upper end of the town, close to the water. The defences on this northern side consisted of a high strong wall, the straight lines of which were unbroken, except by a few towers. Before the wall lay a deep wet ditch, separated from the harbour by a broad pier of masonry, which extended all along the town and the castle. At the lower end of the town towards the sea, the pier broadened, and a few houses that stood on it formed a little suburb encircled by a wall. It was on the northern side, and from across the harbour, that the attack was to be made, just as Noyelle's spy had predicted on the 18th December. A battery was constructed during the night on the sand-hills near Rysbank, and on the morning of the 4th its cannon opened fire upon the wall of the town near the water-gate.[1] It lasted the whole day. The English cannon, though more numerous, could not silence the fire of the French. The gunners of Strozzi's battery bravely exposed their lives in the unequal contest, but the English did not show the same energy. In the afternoon, some cannon being dismounted, the men serving under John Highfield, Captain of the Ordnance, deserted their guns. On the 5th, the French, who had brought up more cannon, were able to continue their fire without opposition. It produced, however, but little effect. The distance across the harbour, the pier, and the wet ditch, some six hundred paces,[2] was enormous for the cannon of those times. The wall, moreover, was well lined with earth, and protected by the pier which was in front. The attack, which seemed hopeless at this place, was vigorously carried on at others. During the night of the 4th Guise had sent d'Andelot (brother of the Admiral Coligny) with 1500 foot across the harbour, to occupy a little sand-hill in which the pier terminated towards the sea. Thence d'Andelot was advancing with trenches towards the wall of the suburb in order

[1] Bruss. A. d. R., L. d. S. 19, fol. 36. Paris, Bibl. Imp. Mss. Fr. 4738, St. Vict. 1062.

[2] Paris, Bibl. Imp. St. Vict. 1062.

to gain possession of it. As long as this was not done, ships might easily run ashore at high tide near the pier, and safely land men and provisions on the sand-hill, or might, with some risk from the cannon of Rysbank, lie-to at the pier of the suburb. On the sand-hills, a little higher up than the former battery, a new one was erected opposite the castle.[1] The wall of the latter, so Guise was told by some Englishmen, was not, like that of the town, lined with earth. It would therefore not resist equally well. On the morning of the 6th, both batteries opened their fire with more than thirty pieces against the unhappy town. While Calais was thus vigorously besieged and scarcely defended at all, little had been done to relieve it. On the 2d of January, Wentworth had written to King Philip, to ask that in case of need he might have four hundred Spanish arquebusiers who were at Gravelines.[2] Vandervile, the governor of that place, was willing to send them even without orders,[3] and on the 3d he despatched Captain Salinas to Calais to confer with the deputy.[4] This was the moment when Newneham and the Rysbank were lost. Wentworth detained Salinas, but sent back a courier with pressing entreaties for succour.[5] It was too late. The French had already surrounded Calais, and when Ayala's troops advanced on the 4th they were met by the French horse, and after a sharp fight driven back to Gravelines.[6] Vandervile, however, received soon after positive orders from the King to send some troops to Calais. The French lines might with some risk be forced, and Vandervile had prepared an expedition for the night of the 6th, when he was diverted from his purpose by news from England.

The Earl of Rutland, when he returned to Dover, had there found Sir Thomas Gresham and Sir Henry Jerningham, who had been sent thither by the Queen to collect troops. Having got some men together he sent over a herald to Gravelines to learn from Vandervile where they might land, and how they were to enter Calais.[7] The herald arrived at Gravelines early on the 6th. Instead of simply stating his message, he vauntingly told the governor that the Earl had already embarked 10,000 men at Dover in forty vessels, and that he was to inquire where they might land.[8] The joy experienced by Vandervile equalled his astonishment at such good news. 'Anywhere,' he replied, 'between here and Gravelines, and as soon as possible.' The brave, bluff Fleming took the boasts of the Englishman for

[1] Paris, Bibl. Imp. St. Vict. 1062, Mss. Fr. 4738, Delamar, 9484. 4.
[2] Simancas, Est. Leg. 810, fol. 11.
[3] Bruss., A. d. R., L. d. S. vol. xix. fol. 14.
[4] *Ibid.* vol. xix. fol. 19.
[5] *Ibid.* vol. xix. fol. 20.
[6] *Ibid.* fol. 34. R. O. Mary, Foreign, 715.
[7] *Ibid.* 715.
[8] Brussels, A. d. R. vol. xix, fol. 37.

truths. The herald returned and reached Dover at night. If the Earl really had 10,000 men at his disposal, and if he had immediately sailed, he might with a fair wind have landed the troops on the morning of the 7th. Ten thousand Englishmen, no matter how bad troops they might have been, would have been able, with the assistance of a few hundred arquebusiers and horse, to break through the French lines, which were most extensive. Visions of victory and of an inglorious retreat of the French were floating before the mind's eye of Vandervile, and were fostered by the assurances of Lady Wentworth and of certain men, who had escaped out of Calais, and asserted that the town was in a state to hold out for some time.[1] Under such circumstances he did not think fit to expose the lives of three hundred brave men. The laws of war were very strict at that time. Soldiers who tried to enter a besieged town at night were hanged on the spot. The herald's account, however, was utterly false. The Earl's troops were few in number and nowise ready to cross. Had they even been ready, it would have been too late,—Calais was lost the same night.

After a heavy cannonade, which lasted the whole day, Marshal Strozzi had asked for permission to cross the harbour, and, if possible, to entrench himself on the pier. Thence he could annoy those who were repairing the breach at the water-gate, as well as those who were defending the suburb. The Duke of Guise granted his request. At the same time he ordered M. de Grandmont to be in readiness to go over with 400 Gascons to the new battery. D'Andelot, whose trenches had reached the foot of the wall, was ordered to make a simultaneous attack on the suburb. The Duke himself with a strong body of foot remained on the sand-hills, ready to hasten to whatever spot there appeared a prospect of success.

About an hour after midnight the water was low enough;[2] Strozzi and his men plunged into the harbour, half wading half swimming over. But the moon shone brightly on the scene of action, the English sentinels descried the advancing enemy, and gave the alarm. As soon as the French had climbed up the pier the watch opened a sharp fire upon them. To storm the breach was impossible, a deep wet ditch separated the pier from it. The fire was growing sharper every minute, and the French, entirely unprotected, had already lost some thirty men killed, and many wounded. To remain any longer would have been folly, so Strozzi fell back upon the harbour. D'Andelot at the same time advanced with ladders towards the suburb, but fared little

[1] Brussels, A. d. R., vol. xix. fol. 37, 39.

[2] Paris, Bibl. Imp. Mss. Fr. 4738; St. Vict. 1062; St. Germain, 991 Paris, Arch. de l'Emp. K. 149, fol. 8.

better, and after a sharp fight was equally forced to retire. As soon however as the two attacks had begun, Guise, suspecting that almost all the garrison would have flocked to these spots, ordered Grandmont to go over. If he found but little resistance he was to storm the breach and occupy the castle. The French accordingly entered the water, waded across to the pier, and with the help of ladders reached the top. They found before them a deep, wet ditch, and scarcely any breach whatever. Had there been any men to defend the castle they could not have carried it.[1] But Guise had been right in his surmise. The undisciplined soldiers of the watch had almost all abandoned their post, the brave men running to the spot whence came the noise of the fight.[2] Eight or ten men who remained were easily kept off by the fire of the French arquebusiers, while other Frenchmen went down into the ditch, swam across the water, planted their ladders against the wall, and made themselves masters of the breach before succour could arrive from the town. They immediately occupied the whole castle, with the exception of a tower standing between it and the town, into which the few men remaining of the English garrison had retired.

The Duke of Guise, as soon as he perceived that the castle was won, led on the reserve and entered it. Having given the necessary orders, and leaving his brothers, the Duke d'Aumale and the Marquis d'Elbeuf and d'Etrées, General of the Ordnance, with other officers, and about 800 men to defend the castle, he himself returned to the other bank to provide other reinforcements for the moment when the water would again be at low ebb.

The English were stunned at first by the unexpected blow that had fallen on them. They soon recovered, however. Aucher, the marshal, on hearing the alarm, had arrived at the gate leading from the town to the castle. He fully understood that if the French could hold out for ten hours until they received succour, Calais would be irretrievably lost. The defences of the castle towards the town were not strong; the English much superior in number, and at last ready to fight. Collecting as many troops as he could, he led them across the bridge against the castle. From the tower which the English still held, a sharp fire was poured into the castle yard, and fireballs were thrown into it, while on the bridge and under the gateway a desperate struggle took place. For the first time during this siege the English fought well. The citizens knew that they fought for their home, while the soldiers tried, under the guidance of an able and determined chief, to atone for their former conduct. They entered the castle yard, but could not maintain them-

[1] Brussels, Arch. du Roy., Pap. d'Etat 47, fol. 4. Paris, Bibl. Imp. St. Vict. 1062.

[2] Paris, Arch. d'Emp. R. 1491, No. 8.

selves in it. From the adjacent buildings the French poured a murderous fire down upon them, which forced them to fall back over the bridge. By this time John Highfield had, by order of Lord Wentworth, brought some cannon to bear upon the gate, which the French were trying to barricade. But the shots took little effect. Time was fast elapsing, so Aucher again collected his men, and led them a second time over the bridge. Guise, however, had not been inactive either. On the sand-hills some cannon had been pointed against the tower, and the English arquebusiers had been forced to abandon it. Some light pieces were also brought to bear upon the open space that separated the town from the castle. When the English renewed the attack they were vigorously opposed in front, while the shots from Guise's cannon took them in flank. Aucher's son was killed fighting at his father's side; Aucher himself fell mortally wounded, and with him fell, too, the last hope of Calais. The ranks of the English wavered, then they retired to the town, leaving the French in undisputed possession of the castle. All hope had vanished. Lord Wentworth, who was holding a council of war in a house on the market-place, sent John Highfield to the castle to treat for surrender. M. d'Etrées received him courteously. He proposed a capitulation, by which the town was immediately to be surrendered to the French, with whatever ordnance stores and property it contained; the common soldiers to return to England; the inhabitants to leave either for England or Flanders; Wentworth himself, with fifty others, to remain prisoners of war until they should be ransomed. The treaty was accepted at once by Lord Wentworth. Guise ratified it gladly, having been anxious, all the time, respecting his brothers and the many brave men he had left in the castle.[1] The French entered, the prisoners were chosen and led off, the soldiers kept apart to be sent to England, and the citizens who wished to leave the place were, during the following days, escorted by Scotch horse to Gravelines and Dunkirk. The inhabitants were not treated with harshness. Nearly all of them were able to secure some money about their persons, and none were ill-treated. On the French side it was a gallant feat of arms; on the English, it was a notable instance of that incompetence in our commanders which has so often brought discredit on the English name; and it shows that under bad government and bad leadership, even the spirit of the English people may sink, and the courage of the English soldier give way.

Calais received a garrison of 3000 men under Paul de Thermes. The rest of the army proceeded first towards Grave-

[1] Paris, Bibl. Imp. F. 4738, 17458, S. Vict. 1062. Arch. de l'Emp. K. 1491, fol. 8. 7. 43. 48.

lines; but Vandervile seemed so resolute to defend the place, which had a competent garrison, that the French fell back. On the 13th they appeared before Guisnes. Lord Grey had a garrison of about 800 English, and 450 Flemings, and 40 Spanish arquebusiers sent to him by Bugnicourt. The town, which was weak, he abandoned; the castle, on the contrary, he defended with great resolution. But Guisnes was already doomed. The news of the fate of Calais had dismayed everybody in England except the Queen, who immediately gave orders to recover it. A furious storm, however, that blew on the 9th, dispersed the fleet. Lord Pembroke, who was to take the chief command, left the army, pretending to be ill.[1] Most of the soldiers, following his example, deserted;[2] nobody would do his duty; none of the orders were executed. Philip himself, despairing of success, advised the Queen not to make any further efforts.[3] Lord Grey, however, not knowing what was passing, withstood three assaults made after a terrible fire. At the fourth, a bastion was carried after three hours' fight, and the garrison forced to retire to the keep. This latter was so weak that it could not hold out. Lord Grey, therefore, surrendered Guisnes nearly on the same conditions as Calais. The officers remained prisoners, the citizens and the common soldiers were left at liberty. Small as the garrison was, from 300 to 400 English and Flemings had fallen; and of the 40 Spaniards, 22 were killed, and the rest nearly all wounded. Lord Grey had done his duty well, and, though unsuccessful, he was honoured even by his enemies. This was the last siege. The garrison of Hammes, as soon as it heard of the loss of Guisnes, revolted against the governor, Lord Edward Dudley, and abandoned the fort. With the exception of a few small places near Gravelines, which the Spaniards had occupied some months ago, the whole of the Pale was in possession of France. Guise did not attack any of the Flemish fortresses. The Duke of Savoy had at last been able to collect a force, not sufficient indeed to meet him in the open field, but quite strong enough to hinder his progress, and prevent him from undertaking a new siege. Guisnes and Hammes having been blown up, the French army retired.

In France the news of this extraordinary victory was everywhere hailed with the greatest joy. The praise of the victor was sung in Latin and French. The capture of Calais was, in France and throughout Europe, looked on as the equivalent for the loss of St. Quentin. The two cases were, in one respect, very different. Frenchmen might have been proud of the defence of St. Quentin, and of Coligny, who, had he not been made a martyr,

[1] Paris, Arch. de l'Emp. K. 1491, fol. 39.
[2] *Ibid.* fol. 39, 50, 56.
[3] Simancas, Est. 811, fol. 24.

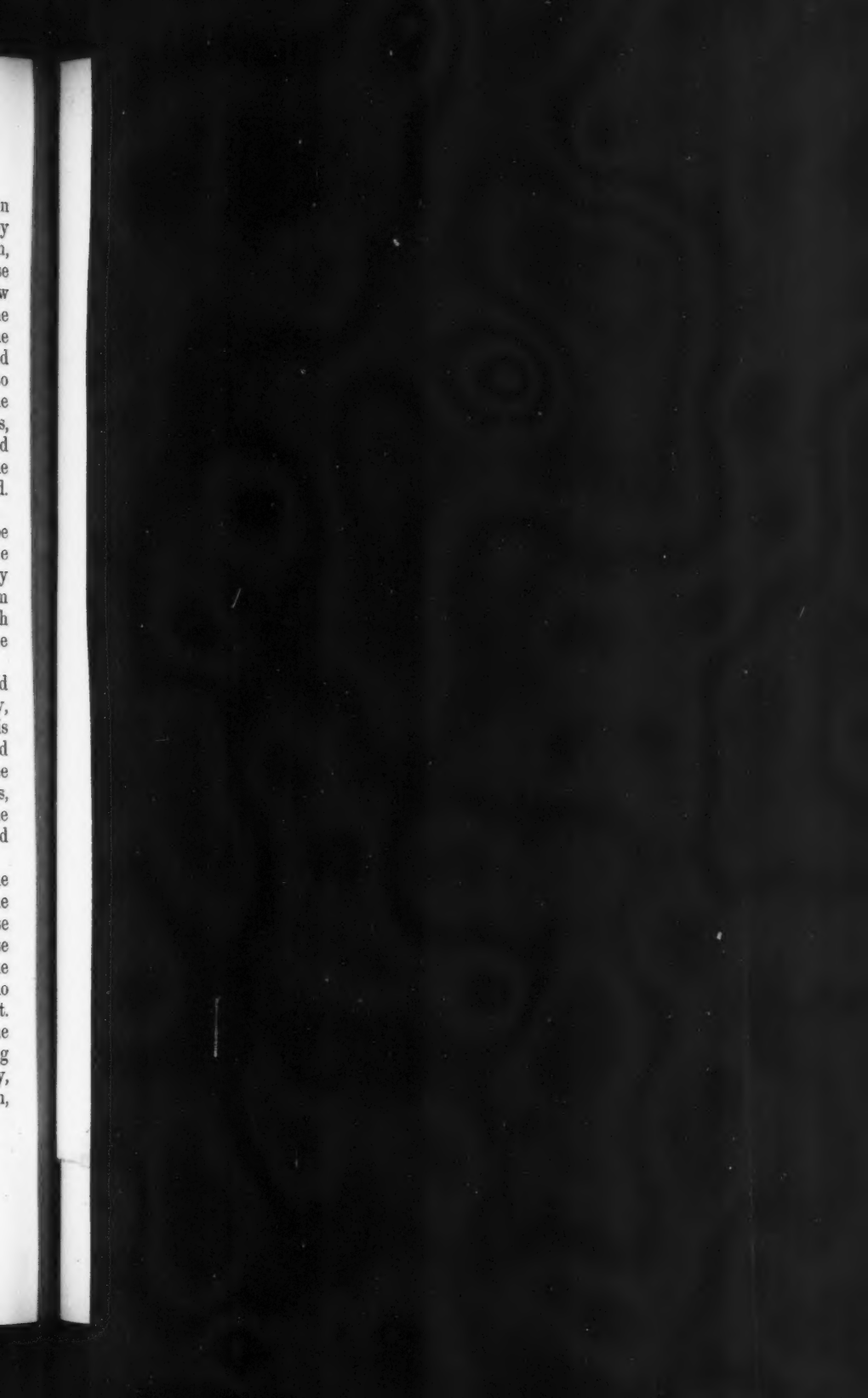
would have been cited as a hero; whilst it was a deep humiliation to the English to have lost an almost impregnable fortress by their own fault. But instead of rousing the spirit of the nation, as the losses of 1557 had done in France, it only created a sense of the utter weakness of England. Nobody would strike a blow for the recovery of Calais. Many schemes were started for the conquest of the Pale, but none were carried into effect. In the treaty of Château Cambresis, indeed, Elizabeth had, with the aid of Philip, a clause inserted that Calais was to be restored to England after five years; but it was a mere form to gratify the English. Nobody expected the promise to be kept. Calais, indeed, some years later, when internal dissensions had lowered the power of France, was torn from its grasp. But it was done by the Spaniards, who were then no longer the allies of England. Calais remained lost for ever to England.

Of the principal actors in this drama little remains to be said. Guise was murdered some years later by a servant of the Colignys. Lord Grey was treated with great distinction. Mary conferred the Order of the Garter on him; Philip allowed him to be exchanged for the Count de la Rochefoucault; Elizabeth on his return named him to the command of the forces on the northern marches.

Lord Wentworth was kept captive in France. He regained his liberty at the peace of Château Cambresis, strange to say, without paying any ransom. Queen Mary would not hear his name spoken, and Philip ordered his wife to be arrested, and his goods sequestered.[1] Elizabeth on his return refused to see him;[2] everybody called him a traitor and a coward. He was, indeed, acquitted by his peers, but it was a mock trial, gone through at a period when Elizabeth, having recently ascended the throne, dared not use rigorous measures.

He came over to England in the month of April; on the 21st he was arrested, and tried next day.[3] His real crime was passed over in silence, the whole case was put in a false light, and even the very dates assigned to the events were false in the indictments. Though direct proofs do not exist that he had treated with Guise to deliver the town into his hands, no doubt can be entertained that Calais was lost by his fault. The false intelligence he gave to the Queen, the opposition he made to receive any succour until it was too late, his recalling the garrison of Newneham, and his subsequent pusillanimity, were the real reasons of its fall. His peers acquitted him, history never can.

[1] Brussels, Arch. d. R., Pap. d'Etat. 67, fol. 66.
[2] Simancas, Est. Leg. 813.
[3] R. O. Baga de Secretis, xxxviii.



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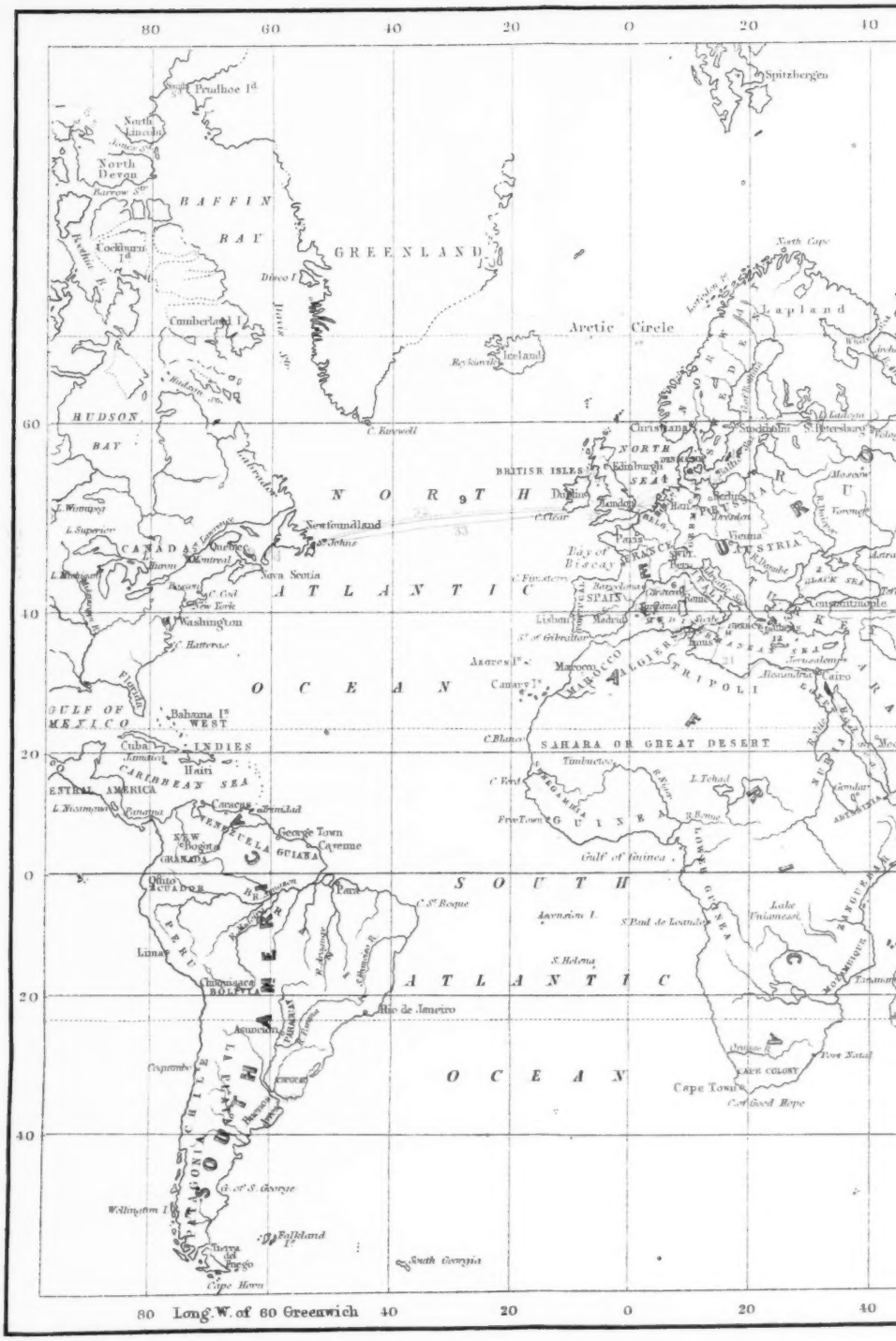

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Art. VIII.—Submarine Telegraphy.

At a time when the first successful submarine cable has been laid across the Atlantic, and a second has been recovered from depths once thought unfathomable, many persons will probably be led to consider how far these great achievements, following on failures almost as great, have been due to mere good fortune, or to a real progress in knowledge. The object of this article is shortly to explain the advances which have lately been made in theory and practice by those who carry out the manufacture and submersion of telegraph cables. To make this explanation intelligible to the general reader, it will be well first to describe what a submarine cable is, and what are the functions it has to perform, although probably few who read this article will be so entirely ignorant of the subject as to suppose, with an ingenious correspondent of the *English Mechanic and Mirror of Science*, that the copper conductor is a long rope which slips backwards and forwards inside a gutta-percha tube, so as to ring a bell in America when pulled by the clerk in England.

The electrical conductor in a cable really is a copper rope in almost all cables now made, though a single wire is still sometimes used; when small, three wires generally form the strand; when larger, seven wires are used. Single wires were first employed, but they sometimes broke at a brittle part, and when large, were inconveniently stiff, tending to force their way out through the insulating sheath of gutta-percha. The seven wires of the strand never break all at one point, and the fracture of any one produces no sensible effect on the conductor as a whole; for although the strength of a chain is limited by that of its weakest link, the conducting power of a wire or strand is in no way limited by that of its smallest section. The large Atlantic strand might be cut in two and joined by a short fine wire barely visible to the eye, without any difference being felt in the rapidity with which signals could be transmitted, or in the magnitude of the currents observed in the cable. The thin wire would produce no sensible effect, unless the length over which it formed the exclusive conductor bore some sensible proportion to that of the whole cable. Six, therefore, of the seven wires of a conductor may be broken in a thousand places without any injury to the cable, provided any one wire at each spot remains not wholly broken; nor is it, of course, necessary that this one wire should always be the same. Of course the seven wires forming the strand act as one conductor, and transmit only one message at a time.

The interstices between the several wires are filled with an insulating varnish known as Chatterton's Compound. The object of this varnish is to prevent the percolation of water along the strand, should any water ever reach it, and also to produce a more perfect adhesion between the strand and the gutta envelope, so that it becomes very difficult to strip off the insulator, even should it be cut or abraded. In older cables it was by no means difficult to pull the insulator off the copper in the form of a gutta-percha tube, and in great depths water was very generally found to have penetrated to the copper throughout its entire length. This was not necessarily fatal to the cable, for the water inside might be quite well insulated from the water outside, owing to the extreme minuteness of the pores by which it had gained access to the interior; but this water was the cause of serious difficulty and danger in joining a fresh piece of cable to an old one during repairs, and it was also probably dangerous by its tendency to produce an oxidation of the copper conductor. In cables as now made, there is no space for the water to lodge, and no water is ever found between the insulator and the copper.

The insulator employed in every cable of importance hitherto laid has been gutta-percha. The copper strand is passed into a vat of semi-fluid percha, and is drawn through a die of such size as to allow a convenient thickness of insulator to be pressed out round it. This first layer of gutta-percha receives a coat of Chatterton's Compound, and the process is repeated until the copper is covered to the specified thickness by a succession of alternate layers of gutta-percha and compound. Three or four coats of each material are generally used; the largest wires with their insulating cover are nearly half-an-inch in diameter, the smallest in practical use for cables are about a quarter of an inch in diameter; but it is quite possible to cover in this way copper wire no thicker than a hair. The dangers encountered in this part of the manufacture are, impurities in the gutta-percha; eccentricity of the conductor in the insulator, leaving a dangerously thin coating of the latter; and, lastly, air-bubbles which may lodge in the insulator unperceived, and do serious injury. In time, water is certain to penetrate to these air-bubbles; it becomes partly decomposed, the gas generated bursts the bubble, and exposes the copper to the water. The slight leak thus formed is, by the action of the battery used in signalling, easily developed into a very serious fault. Fortunately, the manufacturers have been able almost, if not wholly, to prevent the occurrence of these dangerous cavities.

If the cable is to have only one conductor, as is the case in

most long lines, the insulated wire is served or wrapped with hemp or jute, which acts as a padding between the gutta-percha and the outer iron wires used to give strength. This serving used to be tarred, but Mr. W. Smith pointed out that the tar was occasionally squeezed into small faults, and was a sufficiently good insulator to prevent their detection during manufacture, though not sufficiently good to prevent these flaws, under the action of the battery, from developing into serious faults. Since then, wet tanned hemp has been generally used. Outside the hemp serving come the iron wires, laid round and round the core, so as to give the whole the appearance of a simple wire rope.

These iron wires are very generally galvanized to prevent rust. In many cases they are further covered by a double serving of hemp, and a bituminous compound of mineral pitch, Stockholm tar, and powdered silica, patented by Messrs. Bright and Clark. This compound is used in the Persian Gulf Cable, the Lowestoft-Norderney (Hanover) Cable, and several less important lines, and seems to answer well. In other cases, as in the present Atlantic Cables, each iron wire is separately covered with a hempen serving, and the served wires are then laid round the core as before: the cable in this case looks like a hemp instead of an iron rope. Many other forms have been proposed, and a few adopted, but before these can be discussed, the duties which the cable has to perform, as a rope, must be understood; and before entering on this subject, which is purely mechanical, it will probably be better to return to the insulated conductor and its electrical properties. Its form and materials have nominally undergone hardly any change since the manufacture of the first cable laid from Dover to Calais in 1851. The copper strand was substituted for the single wire in the Newfoundland and Cape Breton Cable, laid in 1856. Chatterton's Compound was used in the cable between England and Holland, laid in 1858. The interstices in the copper strand were filled with compound in the Malta-Alexandria Cable, laid in 1861; and since that time absolutely no change has nominally been effected either in the form or materials used. Now, inasmuch as an overwhelming proportion of the cables laid in deep seas have failed, have we any right whatever to expect that cables will be permanently successful, of which the vital portion is nominally identical with that of the old Atlantic, the Red Sea, the Sardinia-Malta and Corfu, Sardinia-Africa, the Toulon-Corsica, the Toulon-Algiers Cables, which, in the aggregate, represent about 8000 statute miles of wire, which, after a more or less brief period of working, became wholly useless, as may be supposed chiefly from electrical defects? Did it not seem

almost madness to attempt to cross 2000 miles, in depths exceeding 2000 fathoms, at a time when the only cable which could be cited as having worked satisfactorily for any considerable time in deep water, was a short length of the Malta-Alexandria Cable, lying in 420 fathoms of water? To the public, and to many engineers, it did seem hopeless; but the fact that it was precisely those persons who knew most of the subject that risked their reputation and their money, should prepare us to believe, that, although the name of the materials and the form of the insulated conductor remained unchanged, other changes had taken place which fully justified the confidence of the Atlantic projectors. The methods by which the perfection or imperfection of the cables were examined—the methods of testing, as it is called—have in fact made enormous progress, and it is to the discoveries and inventions in this branch of science that we owe both those improvements in the quality of the materials employed, and that certainty of detecting the smallest fault, which led so many practical engineers and electricians to a conviction of the feasibility of the great undertaking now so happily completed. It is on these electrical tests that a reasonable belief may be based of the probable permanence of the two Atlantic Cables, and it is to these improvements that attention will now be directed.

The electrical tests employed for the first cables made were simple enough. It was necessary to ascertain that the copper conductor in the cable was unbroken, and fit to transmit an electric current. This was tested by placing a galvanometer in a simple circuit formed by the battery, the copper conductor of the cable, and the wire of the galvanometer. If the conductor was unbroken, a current passed from one battery pole to the other through the cable, and in its passage through the instrument deflected a needle. The stronger the current, the more the magnetized needle was deflected. If the conductor failed at any point, no current passed. It was also desirable to know that the conductor was insulated, so that no considerable portion of the current entering one end of the cable would be lost before arriving at the other end, where it would be required to produce a signal; to ascertain this the metallic circuit was broken—one pole of the battery remained connected with the conductor of the cable through the galvanometer wire; the other pole was connected with a plate buried in damp earth, the cable was put under water, and its far distant end was insulated. Thus the battery was ready to send a current into the cable, and would do so, if the cable were at any point connected with the earth. When the cable was well insulated, no current passed; if there was a fault, that is to say, a connexion between the copper inside the cable and the

earth or water outside, a current passed and deflected the galvanometer needle. The test consisted simply in trying whether a current would pass through the conductor, and would be stopped by the insulator; the galvanometer being an instrument which showed the presence or absence of a current by its effect on a magnetized needle. Stanch conservatives may still be heard to sigh for the good old times when a cable was good if a needle stood upright, and bad if it leant to one side; when there were neither complications nor calculations to perplex or mislead any one.

These simple tests, when applied to long cables, had serious defects. Sir W. Thomson was the first to insist on the importance of ascertaining not only that some current would pass through the conductor, but that the greatest possible current did pass which could be expected with a conductor of given dimensions and material. The current which a given battery will produce, depends not only on the length and size of the conductor, but on the material of which it is composed; roughly speaking, a given battery will produce a six-fold greater current in a long wire of good copper, than it will in an equally long wire of iron of the same diameter. The property of the conductor, determining the amount of current which will pass through it under given constant circumstances, is termed its resistance. The greater the resistance the less the current, and *vice versa*. Each metal and each alloy has its specific resistance, from which the resistance of any given wire may easily be calculated. It further happens that various specimens of commercial copper differ exceedingly in this electrical property, so that one copper wire will transmit double the current transmitted by a second, in similar circumstances, although to the eye the two wires do not differ. To this fact Sir W. Thomson drew attention in 1857. It might seem of little importance what the resistance of a conductor is, since the current can always be increased by increasing the power of the batteries employed; but Sir W. Thomson pointed out that the rapidity with which a succession of distinct currents such as are required to produce signals, could be made to follow one another through a long submarine cable, was, *cæteris paribus*, inversely proportional to the resistance of its conductor, so that the commercial value of that cable as a speaking instrument depended on this resistance, which could be diminished only by (at increased cost) increasing the dimensions of the conductor and insulator, or, without any sensible increase of cost, by simply selecting that copper which possessed the smallest specific resistance. This point is clearly explained in the following extract from a paper by Sir W. Thomson, published in the Proceedings of the Royal Society, June 15, 1857:—

'It has only to be remarked that a submarine telegraph, constructed with copper wire of the quality of the manufacture A, of only $\frac{1}{21}$ of an inch in diameter, covered with gutta-percha to a diameter of a quarter of an inch, would, with the same electrical power, and the same instruments, do more telegraphic work than one constructed with copper wire of the quality D, of $\frac{1}{76}$ of an inch diameter, covered with gutta-percha to a diameter of a third of an inch, to show how important it is to shareholders in Submarine Telegraph Companies, that only the best copper wire should be admitted for their use.'

As soon as it came to be understood that the value of a cable might be enhanced forty per cent. by a judicious selection of the copper employed, tests were adopted which should not only show that the conductor would transmit a current, but also that it was the best conductor which could be procured of the dimensions and material chosen. In other words, the resistance of the conductor was measured.

Measurement implies comparison with some unit. The resistance of some special piece of wire at a given temperature may be taken as a standard 'one unit,' and the resistance of all other wires or conductors may be referred to this unit. This comparison was rendered possible by the discoveries of Ohm, published in 1827; measurements were made by him and his followers, Lenz and Fechner, in terms of arbitrary units, and Professor Wheatstone in 1843 published an elegant method of making these measurements, and then proposed the adoption of a fixed standard or unit of resistance. When, therefore, it was found desirable to measure the resistance of conductors, the means were not wanting, and were soon very generally adopted. For these measurements 'resistance coils' are required; these consist in a graduated series of fine wires of known resistance, which can be combined at will so as to give any multiple of the standard or unit that may be required; they are arranged in boxes, and fitted with stops, slides, or handles, so that the required additions or subtractions of resistance may be easily made. As early as 1847 or 1848, the Electric and International Telegraph Company in England, and Dr. Siemens in Berlin, used resistance coils for practical experiments connected with telegraphy; but it was not till 1857, during the manufacture of the last seven or eight hundred miles of the Atlantic Cable, that the copper was systematically selected. This example was followed in the Red Sea Cable, when the resistance of the conductor was regularly tested by Mr. Fleeming Jenkin at Birkenhead, and by Messrs. Siemens during the laying. The copper of the first portion of the Atlantic Cable was not selected in this manner, and was of very indifferent quality. Since then the improvement has been

continual. Dr. Matthiessen reported to the Joint Committee appointed by the Board of Trade, and the Atlantic Company, in 1858, that chemically pure copper was superior to all alloys, and that the best copper for electrical purposes was to be obtained from Lake Superior and Burra-Burra, the worst from Demidoff and Rio Tinto. The gradual improvement since that date may be gathered from the following table:—

Date.	Name of Cable.	Specific Resistance at 24 ° C. in British Association units.
1859	Red Sea, ...	0·270
1861	Malta-Alexandria, . .	0·264
,,	Persian Gulf, . . .	0·247
1865	Atlantic, ...	0·242
1866 [1]	Lowestoft-Norderney, . .	0·240
	Pure Hard Copper, . .	0·231
	Pure Soft Copper, . .	0·226

The smaller the figure in the last column the better the material; the last figure represents perfection. The specific resistance is the resistance of a foot of wire weighing one grain. The unit in which it is measured is that selected by a Committee appointed by the British Association in 1861, from whose yearly reports may be learnt the reasons for preferring this to other rival standards,—for it is by no means a matter of indifference what unit is employed.

The improvements in the methods and instruments used to measure resistance have far more than kept pace with the practical improvement of the material. Resistance coils would now be considered very bad if their normal values were inaccurate to the extent of one part in a thousand; they may be procured ranging from one unit to 100,000. The standards issued by the Committee above named profess to be identical in their resistance, without a greater error than one part in ten thousand. Still greater accuracy could be obtained if required, but the precautions necessary are then very numerous, as may be seen on consulting the various papers by various members of the Committee on Electrical Standards, published in the British Association Reports from 1862 to 1865.

A very wide gulf separates the present practice from the old plan of simply ascertaining the continuity of the conductor. Every hank of copper wire is tested for resistance even before it is spun into a strand. The resistance of the strand is measured

[1] The writer believes that the 1866 Atlantic Cable has better copper than any of the cables in the above table, but he does not know the exact figure of merit.

by the engineers when covered with gutta-percha, and before being admitted to form part of the cable; for twenty-four hours previous to this test it is kept at a stated temperature. The conductor of the manufactured cable is also daily measured, less for the purpose of ascertaining its electrical properties, than to ascertain its temperature from its observed electrical resistance, and also to check the length supposed to be in circuit when other tests are made. These tests are interfered with by variations of temperature, by slightly imperfect connexions, by the induction of the wire upon itself, and, after the cable is laid, by earth-currents. But the precautions thus rendered necessary are well understood, and carefully observed in the case of all important lines. The quality of the copper enters into the engineer's specification with precisely the same numerical accuracy as its weight; it is referred to definite units; and no more frequent disputes arise between the contractor and engineer as to these measurements, than as to the weights of material supplied.

A further use of these measurements will be spoken of when treating of repairs; but for the present let us leave the tests of the conductor to consider those of the insulator. The conductor may have more or less resistance, and work worse or better in consequence, but if the insulation be defective, the cable may not work at all, and the tests of insulation are therefore the most important of all. The old rough test was defective in many ways. It was found that if large enough batteries were used, and care taken to obtain very sensitive instruments, some current might always be made to pass between the copper and the outside of the insulator; in other words, no insulator offers an infinite resistance to the passage of a current. It was not difficult to judge roughly whether the amount of leakage, as it might be termed, was serious enough to damage a cable; but unfortunately, small faults are apt with time to become large faults, and the rough method was quite useless as a means to detect small faults in long cables. As the cable increased in length, the leakage, even through a good insulator, became so considerable, that two or three bad places would make no very sensible difference in the deflection observed; and the galvanometers used became less and less sensitive as their deflections increased, so that the addition caused by a moderate fault became imperceptible. Then the galvanometers were not constant in their indications, so that the deflection of to-day was a very imperfect guide as to the deflection to be expected to-morrow. The galvanometers used by different observers were seldom or never compared. Moreover, the batteries used varied, and their properties were

not examined; little attention was paid to the temperature of the cable, although this has an immense effect on the leakage to be observed; finally, and worst of all, the cables were not immersed in water, and fifty faults might in that case exist in a cable without producing any sensible effect, either on this old rough test, or on any other. Under these circumstances, is it surprising that cables were laid which contained many serious faults, and that, after a short and uncertain period, depending on many circumstances, they ceased to transmit messages? Is it unreasonable to expect that, under a system by which the existence of any sensible inequality in the insulation of a cable is rendered impossible, the cables recently laid may continue in perfect working order for an indefinite period? All experience has shown that sound gutta-percha retains all its valuable properties in deep or shallow water, completely uninjured by use or time. The only decay ever observed has been at bad joints, air-bubbles, or impurities.

It is, again, to Sir W. Thomson that we owe the first suggestion of an accurate method of testing the insulation of a cable. In 1857, in a lecture delivered to the British Association at Dublin, he pointed out that a so-called insulator was really a conductor of enormous resistance; that this resistance, though large, was measurable in terms of the same units as measured the resistance of conductors, and he then gave an estimate that the gutta-percha of the first Atlantic Cable had a specific resistance twenty million million million times greater than that of copper at about 24° C. At his suggestion Mr. Fleeming Jenkin made systematic measurements of the resistance of the insulating sheath of the Red Sea Cable; and, independently, Dr. Siemens of Berlin had made similar arrangements for those measurements during the submersion of the cable. Unfortunately this cable was not tested under water, and these tests were therefore of little use, except to determine the properties of gutta-percha. Since 1859, every important cable has been tested on a similar system. The methods used have varied, but they have always resulted in determining the resistance per knot of the insulator. Attention has been paid to the temperature, any rise in which rapidly diminishes the resistance of gutta-percha. The necessary allowance for the different dimensions of various cables has also been made, and no test is now counted of any value unless made under water. The result is that definite numerical results are obtained, comparable one with another, whatever be the dimensions, length, or temperature of the cable, and whatever be the variations in the batteries or galvanometers employed. The work of one day is comparable with that of an-

other; the results obtained in various factories, and by various engineers, are all comparable, and no considerable variation in the resistance of the insulator, such as would be caused even by a small fault, can possibly escape detection. The improvements in the tests have here also been followed by a great improvement in the quality of the materials, as well as by increased security against faults. The specific resistance of the gutta-percha of last Atlantic Cable is twelve-fold that of the Red Sea gutta-percha; and at 24° C. may be roughly said to be 200,000,000,000,000,000,000 times that of copper (referred to equal dimensions).

It is difficult to find any comparison which will give a tolerably clear idea of the extraordinary difference between the electrical resistance of these two materials; it is about as great as the difference between the velocity of light and that of a body moving through one foot in six thousand seven hundred years; yet the measurements of the two quantities are daily made with the same apparatus, and the same standards of comparison. This fact is well calculated to give an idea of the range of electrical measurements, and the perfection to which the instruments employed have been brought.

Resistance coils and the galvanometer variously combined allow these measurements to be accurately made in many ways. Sir W. Thomson's reflecting galvanometer is now almost exclusively used for this purpose. The simple deflection test is still frequently employed, but it is then reduced by calculation so as to give the results in resistance.

It would be out of place to attempt to explain in detail the modes of testing adopted, but it may be interesting to enumerate the several examinations which each mile of insulated wire undergoes before it is admitted to a cable.

1. The hank of copper wire is tested for resistance.

2. The resistance of the copper conductor of the insulated mile of wire is measured after having been kept for twenty-four hours in water at a constant temperature.

3. The resistance of the insulator is measured under the same conditions, once with a current from the zinc pole, and once with a current from the copper pole of the voltaic battery. The above tests are made by the contractor.

4, 5. The last two tests are repeated by independent observers acting as the engineers of the company.

6. The coil of wire is again tested for insulation immediately before being joined to the manufactured cable.

In addition to these tests, in many cases the insulation is tested in water under a great pressure, to simulate the pressure occurring at the bottom of the sea. This test was patented by

Mr. Reid, and is probably of considerable service, although in the vast majority of cases the insulation resistance is increased by pressure. While a cable is being submerged, it is indeed customary to expect an improvement of about 7 per cent. for every 100 fathoms of water, due to this cause only; thus in 2000 fathoms an improvement of 140 per cent. is expected.

After the cable is sheathed with iron, it lies under water in large tanks; the resistance measurements are repeated daily, and the results compared with those calculated from the length and temperature of the cables. The effects of an increase of temperature in diminishing the resistance of gutta-percha have been separately examined by Messrs. Siemens, Mr. F. Jenkin, and Messrs. Bright and Clark. The results of the various experiments agree very closely. One curious phenomenon deserves mention: the apparent resistance of insulators increases materially while the battery is applied to them, and it is therefore necessary to note the time at which the observation is taken. In the earlier cables even this fact escaped notice. This extra resistance is said to be due to electrification; it ceases gradually after the copper conductor has been discharged by being maintained in electrical connexion with the earth, or with the opposite pole of the battery, but in the latter case it reappears as before, increasing as the application of the battery is prolonged. Its cause is not understood. It seems to be a kind of electrical absorption, and is first mentioned by Faraday in experiments on induction.

Enough has been said to explain the care and accuracy with which the insulation of a cable is now measured. The results obtained may be understood from the following facts. Not one-third per cent. of a current entering either the 1865 or 1866 Atlantic Cables is lost by defective insulation before reaching Newfoundland. Such loss as does occur indicates no fault, but is simply due to the uniform but very minute conducting power of the gutta-percha.

Again, if one of the cables be charged with electricity, and its two ends insulated, at the end of an hour more than half the charge will still be found in the cable. The conducting power of the two thousand miles of gutta-percha has been insufficient in one hour to convey half the charge from the copper to the water outside. Those who have tried to insulate the conductor of a common electrical machine well enough to retain a charge for a few minutes, will appreciate the degree of insulation implied by the above statement. Contrast these facts with the following extract from the lecture delivered before the British Association by Sir W. Thomson in 1857, at Dublin,

and good reason will be seen for believing that the rapid failure of the first cable is not likely to be repeated in the case of those now in use:—

'The lecturer proceeded to explain that, when tested by the galvanometer, there was very little difference in the force of a current sent into 2500 miles of the Atlantic Cable, whether the circuit was or was not completed. This seemed rather hopeless for telegraphing' (he continued), 'where there was so much leakage, that the difference could not be discovered between want of insulation and the remote end. But if there were 49-50ths lost by defective insulation, it would only make the difference between sending a message in nine minutes instead of in eight.'[1]

Sir William Thomson did not on this occasion mean to state that there really was no difference when the farther end was insulated or put to earth, but the instruments employed showed very little difference, and on a subsequent occasion only about one-fourth of the current which started was found to have arrived at the remote end. The difference now is not one three-hundredth part, and the current entering the cable where the remote end is insulated, is now, under the most unfavourable circumstances, not one-hundredth part of that passing when the remote end is put to earth, or, in other words, when the circuit is completed.[2]

[1] From Professor W. Thomson's lecture before the members of the British Association at Dublin, 1857, as reported in the Glasgow *North British Daily Mail* of 4th September 1857.

[2] The following data, supplied by Mr. Latimer Clark, Engineer to the Anglo-American Company, will be interesting to those who have made this subject their special study. The total insulation resistance of the whole 1866 cable, as it lies at the bottom of the Atlantic, is 1316 millions of British Association units, or, as Mr. Clark calls them, ohms. This is equal to 2437 ohms per knot after one minute's electrification. The 1865 cable does not sensibly differ from the 1866 cable. Both lose half their charge in from 60 to 70 minutes. The increase of apparent resistance due to electrification is enormous; thus, after thirty minutes' electrification the insulation resistance is more than 7000 millions of ohms per knot. Mr. Jenkin, in the Red Sea Cable, did not observe a greater increase than 50 or 60 per cent. due to this cause, and a similar amount has been generally observed on other cables. An increase of 200 per cent. for gutta-percha is perhaps unparalleled, although an even greater increase has been observed with india-rubber prepared by Mr. Hooper. While the cable was on board the Great Eastern, it behaved like all other cables as to electrification, rising, for instance, from 681 to 1051 per knot during thirty minutes, at 18·3° C., so that the increased effect of electrification must be due to the low temperature and high pressure. Mr. C. W. Siemens, in a paper published in the British Association Reports for 1863, arrives at the conclusion that at 24° C. pressure does not affect the change produced by electrification. The resistance of the copper conductor of the 1865 cable is 7604, that of the 1866 cable 7209, corresponding to 4·009 and 3·893 per knot respectively. The mean insulation resistance per knot, as measured in the factory at 24° C., was 379 millions, after one minute's electrification. All the resistance measurements are given in British Association units.

Probably the imperfection of the old cable was due rather to the joints between the separate miles of wire as manufactured, than to any extreme inferiority in the gutta-percha employed. These joints are even now the weak places in the protection of a cable. When the gutta-percha has been selected and purified with care, and applied by mechanical contrivances of proved excellence, there is little risk of a fault occurring; but this manufacture cannot be so conducted as to produce one unbroken length of wire, and even if it could, convenience in the other processes of manufacture would require the division of this wire into lengths. One-mile lengths are, in practice, usually made without joint, and are joined together by a skilled workman as occasion arises. The copper strands are soldered together with a scarf-joint, two pieces of fine wire are then wrapped over this joint, so that even if it is pulled asunder, electrical continuity will be preserved, and so far the operation is one of no great difficulty. This cannot be said of the next process, the insulation of the wire by hand, and the welding, as it were, of the new sheets of gutta-percha, so applied with the old sheathing on either side. The gutta-percha is warmed by a spirit-lamp; too much or too little heat is fatal, and the jointer must judge of the temperature by experience; the least moisture will spoil a joint,—hence one reason for providing that no moisture can percolate along the metal strand. A very little dirt or impurity will also do much injury,—hence the rule that a jointer must do no other work, and that the copper wire must be soldered by one man, the gutta-percha applied by another. A joint may also be spoilt by the presence of air under one of the insulating coats, and as the writer cannot pretend himself to make a joint, other causes of failure probably exist of which he is ignorant, but enough has been said to show the difficulty of the process. Fortunately, joints can now be tested apart from the rest of the cable. In old times when a joint had been made the whole cable was tested; if the leak from the new joint was inconsiderable in comparison with the loss from the whole cable, perhaps some hundred miles long, the joint was supposed to be good, although, perhaps, it may have allowed a greater loss in its few inches of length than occurred from some miles of sound cable. A bad joint seldom does more than this at first, but in time it becomes brittle, cracks, leaves the sound gutta-percha at each side, and, finally, allows the water free access to the strand. Joints of this character have been found in considerable number in old cables, and especially in the old 1857-58 Atlantic Cable. Some of these present an appearance of extraordinary carelessness, even the copper strands being imperfectly joined. It is almost certain that the final failure of the 1858 Atlantic Cable was due to one of these

joints in which the copper was imperfectly joined; the wires were pulled asunder when the cable was being laid, they came together again when the strain was removed, but the points of contact soon were oxidized, and all communication ceased. Mere loss of insulation hardly ever entirely stops signals.

The test now employed shows whether a joint is as good as any equal length of the wire, and all joints which do not reach this standard are mercilessly cut out. First the joints to be tested are allowed to soak in water for twenty-four hours, then they are placed in an insulated trough of water connected with a Leyden jar of large surface, the cable is charged with a powerful battery, and a little electricity leaks out through the joints into the insulated trough. If the joint is good, this leakage is so small that the current produced by it could not be shown by the most sensitive galvanometer, but after a minute or two minutes, the insulated trough and Leyden jar will be charged by the gradual accumulation of electricity which has slowly leaked through the joint. If this be now discharged through a galvanometer, it will produce a sensible effect, and can be measured. In fact, the leak which was too small to be directly perceptible, is not only perceived, but its amount ascertained by measuring the quantity which accumulates from it in a given time. This test is due to Messrs. Bright and Clark. Other tests of a similar nature have been proposed, but have been found less convenient. The first test for a joint, distinct from that of the whole cable, was, it is believed, proposed by Mr. Whitehouse. No instance has yet occurred of failure in a joint which has successfully passed the accumulation tests above described. There are about two thousand joints in each Atlantic Cable.

Any further description of the various tests would only be wearisome. There are tests of charge, of discharge, of the effects of electrification, of the effects of positive and negative currents, tests with statical electricity as well as voltaic currents; but enough has been said to show that the examination of a submarine cable, as now conducted, is not guess-work, or even a matter of experience and skill; it consists simply of a long and laborious series of exact measurements, so expressed in figures that all electricians can understand the results, and compare them with those obtained from other cables, or by other observers. In this lies our safety.

Granting that the production of a perfectly insulated conductor 2000 miles long is no longer a matter of chance, can we protect and lay this wire with equal certainty in such depths as the Atlantic presents? or do we here fall back into a region of mere good or bad luck? As to shallow water, the question

need not be asked. No serious strains occur, and the submersion of the cable depends on a few simple mechanical arrangements which have long since been perfected. Even in deep water, cables have not broken during the laying nearly so often as is supposed. Some very early Mediterranean expeditions, a later attempt to join Candia with Alexandria, and the experimental trip of the first Atlantic expedition, give almost the only instances where a cable parted suddenly during submersion; but it must be allowed that the strains endured in passing over depths of 2000 fathoms approached far too nearly to the breaking strain of the cables, and it is by no means impossible that some cables may have been injuriously stretched, although they were not broken.

In order to lay a cable of any construction taut along the bottom of the sea, it is necessary to restrain its free exit from the ship by applying a retarding force nearly equal to the weight of a length of the cable, hanging vertically from the ship to the bottom of the sea. Cables of the old form, in which simple iron wires were laid round its core, would support from 4000 to 5000 fathoms of themselves hanging vertically in water. They could, therefore, be laid fairly taut in depths of 2000 or 2500 fathoms, such as are met with in the Atlantic, but engineers are in the habit of allowing a very much larger margin than the above. They make all their structures from six to ten times stronger than by exact calculation they need be. This figure 'six' or 'ten' they call the co-efficient of safety. A co-efficient of safety of 'two,' such as was given by these old cables, gave very little safety indeed. When the cables are not laid taut, but with a certain slack, the strain need not be quite so great. The friction of the water tends to relieve the strain, but this relief with the old smooth cables was small.

Sir W. Thomson was again the first to give the true theory of the strains which occur, and the curve assumed by the rope during submersion. The first account of the theory appears in the *Engineer* newspaper of October 1857.

A much more elaborate investigation was, independently of Sir W. Thomson's theory, made by Messrs. Brook and Longridge, whose able paper was published in the Transactions of the Institution of Civil Engineers for 1858. Dr. Siemens of Berlin independently arrived at similar conclusions; the subject is nevertheless not a very simple one, for the Astronomer-Royal was misled more than once in his investigations concerning it.

When the ship and cable are both at rest, the latter hangs in a simple catenary curve, the strains on which are easily computed; but when the cable is being payed out, it lies in an inclined straight line from a point a very little below the surface

of the sea to the bottom (provided, however, the cable as it lies at the bottom is not strained); above the water the cable hangs in a short catenary; the angle at which the cable lies in the water depends on the speed of the ship, and the specific gravity of the cable; it is independent of the strain on the cable, and is therefore unaltered whether the cable is being payed out slack or taut. As the speed of the ship increases, the angle which the cable makes with the horizon diminishes; the same effect is produced by diminishing the specific gravity of the cable—that is to say, by increasing its bulk relatively to its weight. The Atlantic Cable, under the water, probably lay at an angle of nearly 7° with the horizon; on leaving the ship, the angle was $9\frac{1}{2}$°. In this case, in a depth of two miles, a length of from $16\frac{1}{2}$ miles cable would lie in the water between the point where it left the ship and that where it touched the bottom. The weight of this cable, weighed in water, would be 231 cwt.; fortunately, as the cable would break with about 154 cwt., only a very small part of this weight is borne by the cable itself as it leaves the ship. Even if the cable were to be laid absolutely taut, a restraining force of 28 cwt. only would be necessary. In practice, 12 cwt. to 14 cwt. was found quite sufficient.

The cable, as it leaves the ship, may almost be said to lie on a long inclined plane of water; if it lay on a solid inclined plane, without friction, it might, by a well-known law of mechanics, be balanced by a length of itself hanging vertically from the apex of the inclined plane to the bottom, and this is almost exactly the strain required to be given by the break on board ship to balance the cable, or, in other words, to prevent it from shooting back along the inclined plane, so as to lie slack in folds at the bottom; but the inclined plane of water is not at rest, it yields under the cable at every instant, at every spot; yet if the cable were pressed through the water, so that the water yielded before it, but did not slip along it at all, the analogy of the inclined plane would be quite perfect. The resistance of the water to displacement would supply the component of the whole force required, perpendicular to the direction of the cable, exactly as in the case of a solid plane; but, on constructing a diagram, it will at once be seen that the cable, as it descends, slips a little along the plane, and the friction of the water opposing this slip, slightly diminishes the strain required to lay the cable taut. If, on board ship, this full strain is not produced by the breaks, the cable slips still faster back along the inclined plane, and with such a velocity that the friction of the water on the cable makes up for the insufficient tension given by the breaks, and equilibrium is again restored, but at the expense of a waste of cable. It will be clear that, with a

given depth, the greater the length of cable in the water, the less need this waste be, for the friction will be directly proportional to the surface; further, for the same reason, the waste will be less the more bulky the cable, and the rougher the surface. With the old iron cables of small diameter and smooth surface, very little advantage was gained by diminishing the strain on the breaks below that due to the full depth of water; a very slight relief of strain was followed by a perfect rush of cable out of the ship, and a loss of twenty or twenty-five per cent. was followed by a comparatively small diminution in the risk of fracture. In the cables of the Atlantic class, the bulk relatively to the weight is very greatly increased by enveloping each iron or steel wire in a separate covering of hemp, before laying them round the gutta-percha. These cables lie at a much smaller angle with the horizon, they offer a much larger and rougher surface than the simple iron cable, and consequently the friction, as they run back on the inclined water-plane, is very much larger. With cables of that class it becomes practicable and desirable to diminish the strain produced by the break much below that due to the full depth of water. Slack to the amount of twelve or fifteen per cent. diminishes the necessary strain on the breaks by more than one-half, and the importance of this relief can hardly be over-estimated. It actually becomes practicable to disregard the depth over which the ship is passing. The breaks may be set to give the strain thought desirable, and the cable will then take care of itself. In shallower water, less slack will be payed out, in deeper water more, but the amount is never excessive, and can at any time be diminished by increasing the speed of the ship, which, by diminishing the angle at which the cable lies with the horizon, augments the effect of the friction of the inclined water-plane. This effect must not be confounded with the effect that would be produced by a buoyant substance attached to the cable. The hemp is no lighter than water, and does not tend by its buoyancy to carry any part of the weight of the cable, but it increases the bulk, and therefore increases the resistance of the water to displacement, and both directly and indirectly increases the surface friction.

The strain on the new Atlantic Cables during submersion was from 12 to 14 cwt.; their strength is 150 or 160 cwt. Here there is a co-efficient of safety of ten instead of two or four. The first cable out of the water weighed little more than half as much as the new cables; in water, it weighed more than they do. Its strength was 80 cwt., and the maximum strain during its submersion was nearly one ton; the ordinary strains varied from 1500 to 1900 lbs.

From these figures, we may learn the progress which has been made in the mechanical construction of the cables, and the diminished risk which attends their submersion.

The history of the several attempts to lay the cables helps to show the progress made in the construction, and bears out the conclusions as to the improvements effected. In August 1857 a first attempt was made to lay an Atlantic Cable; 330 knots were laid, starting from Valentia. Then the cable broke, the indicated strain being about 27 cwt. The retarding friction on this occasion was produced by two blocks of wood which were clamped round a small drum. Before the next attempt the Appold break had been invented, and with the sanction of Mr. Penn, Mr. Field, Messrs. Easton and Amos, Mr. Lloyd, Mr. Everett, and Sir C. Bright, it was applied to the paying-out machinery. This break is an excellent contrivance, by which the required strain is readily produced and maintained unaltered; the retarding friction being quite independent of the condition of the rubbing surfaces. This break was successful, and has been used ever since. The 1858 expedition began operations on the 26th of June by a splice in the middle of the Atlantic, joining the cables contained in the 'Niagara' and 'Agamemnon.' The cable fouled the 'Niagara,' and broke. A second splice was at once made, and successfully lowered to the bottom. When the Agamemnon had payed out 37½ miles, and the 'Niagara' 43 miles, the electrical tests showed that the copper conductor of the cable was severed. In technical language, there was a loss of continuity. The 'Niagara' endeavoured to haul in the cable, which shortly broke for the third time. On the 28th of June another splice was made; but after 111 miles had been paid out, the cable broke for the fourth time, with a strain indicated of 2200 lbs., or nearly one ton. On the 28th of July another splice was made, and this time the cable did not break, but was laid successfully as a mechanical operation, but unsuccessfully in all other senses. As before stated, a want of continuity did occur, but it ceased after a few hours, and was passed over as of insufficient consequence to stop the submersion.

Much surprise has been expressed at the rupture of a cable estimated as strong enough to bear four tons, when the indicator showed only about one ton. It has frequently been suggested that the instrument gave false indications; but there is really little reason for supposing this. The cable was covered by 126 small iron wires, spun into eighteen small strands, the whole cable being only 5-8ths of an inch in diameter. The wire was not galvanized, and rusted very readily. It is

most probable that in many places its theoretical strength was very much reduced by this cause.

In 1865 and 1866 the same break and indicator, or dynamometer, as it is sometimes called, were used, but the history of events was widely different. The cable, during submersion, not only escaped fracture, but was not even once strained within a tenth part of its supposed strength. In 1865, the occurrence of a small fault, which would have been far too insignificant to have been detected in 1857 or 1858, caused an attempt to haul back the cable, which was broken by chafing against a projection from the bows of the 'Great Eastern.' The arrangements in 1865 were by no means perfect. The picking-up gear was defective, and the system of electrical tests faulty, but the paying-out machinery acted admirably, and the cable hardly admitted of improvement. In 1866 the picking-up gear was good, and the electrical arrangements left nothing to be desired.

The special form of cable adopted, in which each iron wire is enveloped in hemp, presents various interesting peculiarities. It is actually stronger than the sum of the strengths of the hemp and steel employed to make it. This almost incredible paradox was discovered during experiments made by Messrs. Gisborne, Forde, and Siemens for the Government, with reference to a proposed Falmouth and Gibraltar Cable. It seems strange enough that a steel wire can be strengthened by wrapping hemp or manilla round it; but this was soon found to be a fact, and indeed the percentage of elongation undergone by a hempen strand and a steel wire before breaking are by no means so different as most people would imagine. By selecting the best lay of the hemp round the steel, it was repeatedly found that the strength of the two combined exceeded the sum of the strengths of the two separately, and this strange result has been fully confirmed by independent experiments conducted by Mr. Fairbairn and others for the Atlantic and Telegraph Construction Companies. The explanation is simple enough. Neither material is really homogeneous: each has its weak places; it is extremely unlikely that the weak places of both should coincide. When, therefore, the two are combined, we obtain the sum of the average strengths of each material; when they are tested separately, we get the sum of the strengths of the two at their weakest points.

This form of cable was first used in 1860 for a cable between France and Algiers, Messrs. Gisborne and Forde being the engineers, and Messrs. Glass and Elliot the contractors. The cable, after some misadventures, was successfully laid, and

behaved well during submersion, but the form fell into some discredit, owing to the discovery that even in 1500 fathoms the hemp was eaten away by a species of teredo after a few months of submersion. This left a mere cage of loose iron or steel wires, unfit to be lifted, or relaid if lifted. Fortunately it appears that these animals, which in the Mediterranean fasten on every inch of exposed hemp, do not exist in the Atlantic. Where they have eaten the hemp, the gutta-percha appears as if marked with the small-pox; but no instance has yet occurred where they have actually penetrated the gutta-percha to any serious depth.

The form has other defects. Many persons think that the two injuries which the 1865 cable received during submersion were not due to malice, but to short pieces of broken wire, which would penetrate the soft sheathing of hemp with much greater ease than the hard mail of the common iron-covered cable. The arguments used in favour of this view are as follows:—The hemp conceals a break in the wire which it encloses; a broken wire may be bent out when being coiled, and penetrate the neighbouring coil; the injury may not occur, or not be fully completed, until the coils are disturbed by the trampling of the large number of men engaged on the coil when it is being payed out. Pieces of broken wire were found actually sticking out in this manner after attention had been drawn to the possibility by the faults which occurred. Probably, however, the great success of the Atlantic Cables will cause their form to be the type for deep-sea lines for some time to come.

Cables on board ship are now almost invariably stowed in water-tight tanks; from these they pass up to a sheave or quadrant over the centre of the coil, and thence to the break-drum, and over the stern. A turn or twist is put into the rope by every turn which it makes round the tank; that is to say, it is twisted tighter by the mere action of coiling away; but this twist is again taken out when the cable is uncoiled; so that if this operation proceeds with regularity, the cable goes into the sea in the same condition as it left the sheathing-machine; but if the cable is stiff and springy, or if it is drawn from the hold by jerks, or if one or two coils stick together and are drawn up at once, the turn in the cable tends to throw it over into a loop, which may easily be squeezed or drawn into an ugly-looking thing called a kink. With circular coils, and experienced men in the hold, this hardly ever occurs, and it is rendered next to impossible if the eye of the coil is filled up by a smooth cone, to which the rope clings in ascending, and which prevents any coil from being drawn into a loop. This cone, together with certain guiding-rings which prevent the cable from flying out

under the action of centrifugal force, form the subject of a patent taken out by Mr. Newall, and first used in 1855 for the Varna-Balaclava Cable. The excellence of the contrivance hardly admits of a doubt; but the action of the Patent Laws receives some curious illustrations from the incidents which this patent has given rise to. The validity of the patent has been greatly contested; substitutes more or less like the thing patented have been devised, but rival manufacturers have seldom consented to use the thing patented, and pay the royalty. Although the holds were arranged with contrivances having the same object as Newall's cone and rings, foul flakes, as they are called, twice came up from the hold, once on each expedition. These foul flakes are simply two or more turns of the cable which come up entangled together, and then get jammed into more or less of a tangle on deck, for round the break-drums they cannot go. The cable has to be stopped at once, the ship's engines reversed, and all hands busied in setting the mischief to rights. The following extract from a speech delivered at Glasgow by Captain Hamilton, who accompanied the expedition as a Director of the Atlantic and Anglo-American Companies, gives a graphic description of the foul flakes which occurred during the laying of the 1866 cable:—

'This interruption occurred in consequence of the cable, which was being payed out from the after-tank, bringing up with it a bight from the next lower flake, and also the lead from the inside to the outside of the next layer of the coil, so that five cables were running out from the tank instead of one.

'These were carried aft together till they were stopped by the paying-out machinery; when, in a very short time, they appeared like the tangle of a gigantic fishing-line. The ship was immediately stopped, but the night was pitch dark, rain falling heavily, and a fresh breeze blowing, the cable over the ship's stern being only visible by a slight phosphorescent light where it dipt into the water. Sir James Anderson, however, by great skill, contrived so to handle his ship of 23,000 tons, which was riding at single anchor in 2000 fathoms by a mere thread, that the engineers and sailors had time to reduce this apparent confusion to order, and in about three hours the paying-out was resumed without the perfect testing of the cable having been in the slightest degree interfered with.'[1]

160 or 170 miles of cable were payed out daily during the 1865 Atlantic expedition, and from five and a half to six and a half knots per hour may be considered a good speed in cable-laying. In 1866 the speed was rather slower, the distance was generally about 120 miles per diem, and the cable payed out about 135 miles. The 1865 and 1866 cables are 1896 and 1858 nautical

[1] From the *Glasgow Daily Herald*, 5th November 1866.

miles long respectively. The total distance from shore to shore is 1670 nautical miles. The 1858 cable was 2022 miles long, and it was payed out as fast as in 1865, but more cable was wasted, and the ship went slower. A footnote gives the principal dimensions and weights of these cables.[1]

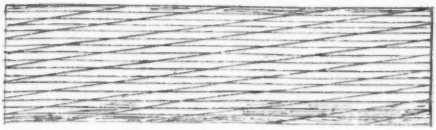
There are some popular fallacies connected with cable-laying which are exceedingly tenacious of life—one is, that inasmuch as the wires are laid round a cable like a corkscrew, they will stretch a great deal before supporting the cable, and so the core will be injured by having to support a considerable part of the strain. In point of fact, nothing of this kind occurs. The iron wires abut one against the other, and form a tube which cannot diminish in diameter as a corkscrew does, or would do, if made of soft wire; and experiment shows that an iron-covered cable stretches very little more than a simple straight iron wire. Cables of the Atlantic class stretch a little more, for the soft strands are compressible; but even in this class of cable, the elongation, with half their breaking strain, is quite insignificant, and with the strain actually used it is insensible. Then some people say these cables untwist, and they certainly do a little, but the cables recovered from great depths prove that the number of turns which are thus taken out of a cable are quite insignificant, producing no sensible elongation or change in the lay. Others think the rise and fall of the ship must cause sudden jerks and great changes in the strain on the cable as payed out, and quite a small army of patents stand ready to defend the right of inserting some elastic contrivance by which the cable is to have a certain play. Probably the see-saw which these contrivances might introduce would be far more dangerous than the evil they are designed to remedy, for in truth the strain changes very little even in heavy weather, so long as the

[1] *First Atlantic.*—Length as laid, 2022 knots; copper conductor 7-wire strand, weighing 107 lbs. per knot, diameter 0·083 in.; covered with gutta-percha, weighing 260 lbs. per knot, diameter 0·38 in.; served with tanned hemp, and covered with eighteen strands of seven bright charcoal iron wires 0·028 in. diameter; total diameter of cable 0·62 in.; weight of cable in air per knot 21·7 cwt.; in water 16·3 cwt.

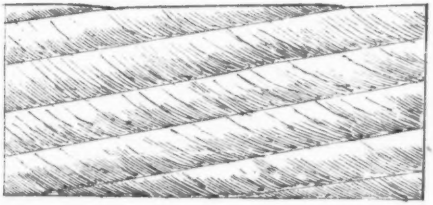
Second, or 1865 *Atlantic.*—Length when complete in 1866, 1896 knots; copper conductor 7-wire strand weighing 300 lbs. per knot; diameter 0·114 in.; covered with gutta-percha and Chatterton's Compound, weighing 400 lbs. per knot, diameter 0·464 in.; served with wet tanned hemp covered with ten bright steel wires, each enclosed in five tarred manilla hemp strands, diameter of each wire 0·095 in.; diameter of strand 0·28 in.; diameter of cable 1·125 in.; weight of cable per knot in air, 35¾ cwt.; in water, 14 cwt.

Third, or 1866 *Cable.*—Length as laid, 1858 knots; similar to 1865 cable, except that the steel wires were galvanized and the manilla strands were not tanned but left white. Weight in air 31 cwt., in water 14¾ cwt.; breaking strain, 8 tons.

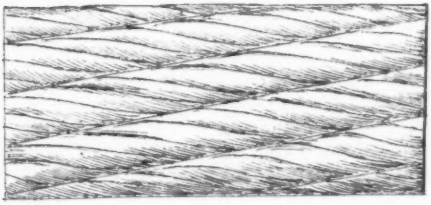
ATLANTIC CABLE, 1858.

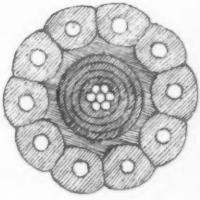


ATLANTIC CABLE. 1865.



NEW ATLANTIC CABLE, 1866.





ship is going fast enough to let the cable lie at a small angle with the horizon. When the cable hangs vertically the case is different, though even then the change of strain is much less than would be supposed. With the 'Great Eastern' as a *point d'appui* the variation was hardly sensible. Another array of patents defends the privilege of laying a cable through a long auxiliary tube, or with a long auxiliary cable; four patents for this contrivance were taken out in 1857. Other gentlemen wish to tack floats on to the cable; others, parachutes; others, gum and cotton, so as to buoy the cable up for some time; then the gum or glue dissolves, and lets the cable down quietly. It is both amusing and sad to read these and many other contrivances. Surely the man who makes a bad invention, and, believing it to be good, spends his life and his fortune in the vain attempt to achieve an impossible success, is almost as fit a subject for commiseration as the real inventor who fails to reap his just reward; and then the former class are much more numerous than the latter.

The machinery now in use for laying cables acts extremely well; if the cone and rings were in general use, no further improvement would be required. An experiment by Messrs. Siemens Brothers to use a reel mounted on a turn-table in the ship's hold, and driven by a steam-engine, deserves notice, and to some extent praise, as, at any rate, an experiment out of the beaten track; but the experiment was not successful. Captain Selwyn has proposed a floating reel, the speed of which would be regulated by the floats of paddle-wheels; but contractors who have achieved success by the old plans will be slow to tempt fortune by trying these novel contrivances. It will be seen that very little improvement has been made in the paying-out machinery of late years, simply because it was not wanted. The cone and rings date from 1855; the Appold's break from 1858; water-tight tanks were first made in 1858 for the Red Sea Cable, but first used by Messrs. Gisborne and Forde for the Malta-Alexandria Cable in 1861. Since then, no material change has been made in the arrangements.

It is far otherwise with the electrical tests during submersion.

The object of tests during submersion is twofold: *first*, to detect instantly any injury which may occur; and, *secondly*, to ascertain the position and nature of the injury. Time is of extreme importance in these tests. Faults on board almost always are caused at or near that part of the cable which is in the act of leaving the ship. That is the only portion which is being disturbed, and it is hardly possible that a change can take place elsewhere. If the fault be instantly detected, the ship stopped and the cable arrested as speedily as is consistent with safety, the fault may be retained on shipboard, or if it pass into the

sea, only a short length of cable will have to be hauled back before the faulty portion is recovered. As soon as it is quite certain that a fault exists, and the necessary steps have been taken to prevent the cable from running uselessly into the sea, means must be adopted to ascertain where the fault is. One rough method is to cut the cable in the hold near the part being payed out, and then by examining successively the portions in the ship and in the sea, to determine whether the fault is still on board; but electrical methods exist by which, before or after the adoption of this simple examination, the position of the fault can generally be fixed with considerable accuracy. Few statements concerning telegraphy excite more surprise than this does; few people know that accurate measurement of electrical phenomena is possible; some even think that electricity is an agent almost capricious in its action; but those who have learnt that the electrical properties of a conductor or an insulator are susceptible of definite numerical expression, should feel no surprise on hearing that when the electrical properties of a submarine cable of uniform construction are observed to undergo a definite change in virtue of some alteration at some one point, it is quite possible to make such a series of measurements as shall fix the position of that point. There are only two unknown quantities, and whenever by experiment equations can be obtained, including these unknown quantities, they can can be determined. Quitting generalities, let us try to show how this is done. We will first suppose that the simple insulation test has shown that the conductor is no longer fully insulated.

A measurement must be made of the resistance of the conductor intervening between the ship and the sea at the fault or earth, as, oddly enough, it is always technically called. If this measurement give 40 units, and the resistance of each knot of the cable is already known to be 4 units, the observer will know that the fault cannot be more than ten miles off. It has already been stated that the electrical resistance of a wire or conductor can be measured with extreme accuracy, and that, as the resistance is proportional to the length, the length in circuit can be calculated from the resistance. Still, from our one measurement, we have not got information enough to know certainly where the fault is,—we only know that it cannot be more than ten miles off; it may be less, for the fault itself may have a certain resistance, and about the fault we as yet know nothing. But suppose we can now obtain a similar measurement from the other end of the cable, and this gives 600 units, while the whole length of the cable is 150 miles, we shall then know that the fault is five miles from our end, and has a resist-

ance equal to 20 units; the resistance as measured from our end consists of five miles of conductor and the fault, or 40 units in all, that from the other end consists of 145 miles of cable and the same fault, or 600 units in all, and no other position or resistance of the fault will agree with the two observations made. A comparison with a pipe of water may make this clearer to non-scientific readers. Let us take a pipe 150 yards long, and suppose that we know exactly how much water will run through any given length of a pipe of that diameter from given cisterns at each end. Now, suppose a leak to occur in that pipe: if we stop up the far end, and let the water run in from our cistern, we find that as much water runs out as would be allowed to pass by a pipe ten yards long, we then stop up our end of the pipe and let water run in from the far cistern. We find as much water is conveyed away as would be allowed to pass by a pipe 150 yards long; then, as in the electrical case, the leak in the pipe must clearly be five yards from our end, and it must have a resistance equal to that of five yards of pipe. Thus the position of a leak in a water-pipe might be discovered, although the leak itself were buried in the ground. The electrical experiment is quite analogous to this, and is in practice made much more easily than the experiment with water-pipes could be made, for the laws of the flow of water in pipes are much less well understood, and less simple than the laws of the flow of electricity, although we may think we know better what water is than what electricity is.

In cables containing more than one wire, the above test, or something analogous to it, can always be made, for the faulty and good wire being joined together at the distant station, can be treated as one conductor, of which the observer has two ends in his possession. He can then arrange his test so that his observations at both ends are really simultaneous with the fault in the same condition when added to the two circuits. In this case, a test based on the above principle is quite perfect, and will fix the position of a fault with great nicety. But where the cable has only one conductor, the two tests must be made by different observers at different times. Faults have a disagreeable art of varying very rapidly, so that their resistance is never the same for two minutes or fractions of a minute, and then the test becomes inaccurate, though not actually useless. For instance, the observer in the first case might feel quite sure that the fault was not more than ten miles off, even if he got no information from the other end; if the fault were caused by a nail joining the copper and iron of the cable, it would have no sensible resistance, and the above test would show it was exactly ten miles off. Even if the cable were broken,

the observer could guess from the variation of the fault, the current it returned, and other peculiarities, whether it was likely that the fault had much resistance, and thus form by the aid of experience a fair guess at its exact position.

The measurement of resistance is far from being the only test of which the results can be expressed with numerical accuracy; for instance, the statical tension at any point of the wire, its potential, as it is called, can be measured by electrometers, and indirectly by various methods. This statical tension is the quality, in virtue of which one electrified body attracts or repels another more or less strongly. When a current is flowing from a battery through a conductor to earth, the potential gradually decreases from a maximum at the battery to zero at the earth, and decreases according to well-known laws. The observation of this potential at any point gives additional information, therefore, by which the condition of the conductors may be determined. To revert to the analogy of the water-pipe, the potential would be represented by the pressure per square inch, or head, inside the pipe at each point; it would be greatest near the cistern, and gradually decrease to nothing at the mouth of the pipe where the water was discharged.

Another class of fault is more easy to manage. If by accident the pipe got choked up instead of having a hole in it, nothing would be easier than to tell where the obstruction lay, by measuring the quantity of water we could pour into the pipe before filling it. Then knowing the capacity per unit of length, we could calculate the distance by simple division. Exactly so the capacity per unit of length of an electric cable for electricity can be, and is measured, so that if the conductor is broken inside the insulating sheath, without a fault of insulation occurring, the distance of such a fault can be obtained by a simple measurement of the charge which the insulated conductor will take. In short, we can measure current, resistance, potential, and quantity. What is to be measured depends on the nature of the fault observed; but from these measurements, or some of them, wherever they can be made simultaneously at each end, the position of the fault can be fixed. Unfortunately, no system of tests on one side of a fault can give its position. A bad fault far off, and a small fault close at hand, cause all the elements which can be observed to vary simultaneously, so as to give no clue as to which has occurred. A bad fault, or one with little resistance, can have its position fixed on the assumption that it has no resistance; but a slight fault absolutely requires the distant test before its position can, even approximately, be determined. Fortunately, signals from the distant end can always be sent past such a fault. We are

now in a position to consider the tests hitherto used during laying, and the improvements used on the Atlantic expedition.

In very early days people were satisfied if they could speak through a cable whilst it was being laid. Then came the simple insulation test at definite times. Then more complex tests, spaced off into five minutes of this, ten minutes of that, and six minutes of the other, so that each hour was cut up into complex fractions, during which the ship and shore had simultaneously to make more or less complicated changes. If a fault was detected during one arrangement, perhaps half an hour would elapse before the time for speaking and either sending or receiving intelligence would come round. Or, worse still, a fault might occur and not be detected because the connexions at the time were arranged for speaking, or for a mere test of continuity, etc. Then blunders would arise from time not being perfectly kept, or from some of the many changes having been incorrectly performed, so that probably this plan was practically inferior to a simple insulation test permanently maintained. It was, moreover, rigid, and could not be readily altered to suit the special tests required when a fault did occur. All these defects were remedied for the first time during the Atlantic expedition of this year. The end of the cable at Valentia was not quite insulated; it was connected with the earth through an enormous resistance, so great that the insulation test of the cable was hardly sensibly affected by the small leakage through it; but this small leakage was easily perceived by an astatic Thomson's reflecting galvanometer. When, therefore, an insulation test was being made on board the 'Great Eastern,' the current used was perceived at Valentia, where the observer could further judge of the tension or potential produced by the 'Great Eastern's' battery by observing the current it would produce through his enormous, but known resistance. Any fault would lower that potential, and reduce this current at Valentia. More than this, the 'Great Eastern,' by slightly decreasing or increasing their battery, could cause such small changes in the current observed at Valentia as should serve as signals, and this without intermitting their insulation test. Conversely, Valentia, by drawing off little charges, or adding them, could produce effects similar to slight changes in the insulation of the cable, and those effects could be used as signals from the shore to the 'Great Eastern;' being of short duration, and definitely arranged, they could not be mistaken for faults. Thus simultaneous and continuous tests could be made on ship and on shore. Nevertheless, conversation could be carried on in either direction, at any time. No fault of insulation would escape

detection, even during conversation, and as soon as it did occur the instruments were ready arranged to make those simultaneous tests by which alone its position could be determined, and then to transmit that intelligence from one end to the other. The merit of this admirable invention is due to Mr. Willoughby Smith. The details of the arrangement actually adopted were written out by him, in concert with Sir W. Thomson and Mr. Cromwell F. Varley, whose valuable assistance had been given to the Atlantic Company from the time of the failure of the 1858 cable.

The above description of Mr. Smith's invention is not strictly accurate as applied to the arrangements used during the expedition, but the leading idea remained unaltered. Thus the Wheatstone balance was used to measure the insulation resistance in definite units, instead of the simple deflection insulation test. The bridge was arranged with what Sir William Thomson calls a potential divider, a set of resistance coils giving 10,000 equal subdivisions by the mere sliding of two contact pieces. Continuity is never lost, nor the resistance irregularly changed, in these slides,—a considerable practical advantage. A special galvanometer was introduced to test continually the constancy of the ship's battery, without which constancy the potential tests would have been much diminished in value. On shore the potential produced by the ship's battery was measured by two methods perhaps more accurate than the deflection, through Mr. Smith's galvanometer and large resistance. One method, also suggested by Mr. Smith, was by discharges taken from a condenser charged by the conductor of the cable; the second by an electrometer reading, which could compare the potential of the cable with that of each of the 10,000 subdivisions of a slide similar to that used on shipboard. The battery producing the current through coils of the slide was on shore also maintained constant, or corrected by observations on a special galvanometer. By these arrangements the observer could obtain, in a simple form, the various elements required for the immediate calculation of the distance of a fault, had one occurred.

The speaking arrangements were also modified. Charges were not actually withdrawn from the cable, or put in at the shore. The withdrawal of a succession of charges would have produced an appearance alarmingly like a fault. Mr. Varley suggested the use of a condenser attached to the cable on shore, by which he induced slight positive or negative charges, which transmitted the signals to the 'Great Eastern.' He, as it were, instead of at each signal withdrawing a few drops of fluid from our typical pipe, pushed the water a little way back in it, or

pulled it a little way on, and signalled by these impulses without withdrawing one drop of the fluid. When messages were being received on board the 'Great Eastern,' they simply caused the slight necessary oscillations in the marine galvanometer (an invention of Sir William Thomson's, dating June 1857), which were insufficient to disturb the insulation test. When the signals were being sent from the 'Great Eastern,' the rush of current in and out of the cable would have disturbed the galvanometer unduly, so it was shunted; that is to say, a part of the current was derived by a little sliding arrangement, —at the end of each word the slide was moved, and a perfect insulation test made. These various practical improvements can only be understood by professional men, but the leading idea of Mr. Willoughby Smith's plan may be grasped by all. The arrangements worked as well in practice as they were admirable in theory. Fortunately no fault occurred.

When a fault does occur, stopping the cable is a very trying and hazardous proceeding. It can only be done gradually. The ship is perhaps running at six miles per hour, or a mile in ten minutes. She will not lose her impetus for a considerable time, even if the engines are reversed; and when the ship is stopped, the cable cannot be instantly checked,—if it were, the strain would rapidly become far too great for it to bear. The twelve or fifteen miles which lay straight on the inclined water-plane as before described, would quickly fall into the common catenary curve, of which the whole weight would have to be borne ultimately by the cable at the ship's stern; for when the cable ceases to sink, the resistance of the water ceases to buoy it up. The strain caused by a flat catenary of this length is enormous; thus, if in a depth of two miles only ten horizontal miles intervened between the ship's stern and the point where the cable lay on the ground, the strain due to the catenary would, with the Atlantic Cable, be fourteen tons. In practice, therefore, the cable is generally restrained by such a force as is thought safe, and then allowed to run out until it lies in a catenary short enough to produce only this small strain, or if the cable must be held, the ship must go astern over the cable. When the foul flakes occurred during the 1866 Atlantic expedition, the Great Eastern was stopped in two minutes after the signal was given, and only 130 fathoms of cable payed out during that time. The only time which can be safely saved is the time between the occurrence of the fault and the alarm; and, secondly, between the detection of the fault and the decision of the electrician as to its probable nature and position. The arrangements of 1866, in both these respects, were greatly in advance of all that had been previously attempted.

By far the most remarkable recent achievement in submarine engineering was the recovery of the 1865 Atlantic Cable from a depth of two miles. Cables obviously could be laid in deep as in shallow water—this was a mere question of mechanical arrangement,—but very few persons possessed an imagination sufficiently hardy to allow them even to conceive the possibility of recovering a rope which had sunk to the bottom of the Atlantic Ocean. It is not true, as is now frequently asserted, that no one but those engaged in the expedition had any hope of success; for so soon as it appeared from the attempts made in 1865 that the cable could be hooked, Mr. Henley, Mr. Fleeming Jenkin, and a little later Mr. Latimer Clark, publicly expressed their conviction of the probable success of the undertaking; but it is certain that the public, and some even of the directors of the companies concerned, entirely disbelieved in the possibility of success, and put no faith in the assurances given, that the cable really had been found in 1865. Success had attended similar attempts in considerable depths—this was known to engineers,—and calculation showed that what had been done in 600 fathoms by Mr. Henley was possible in 2000 fathoms. Still the greatest credit must be given to Mr. Canning, now Sir Samuel Canning, for his courage in making the attempt in 1865. Few men would have had the nerve to begin an apparently hopeless search at the very moment of failure in a great but comparatively simple undertaking. The admiration is due not so much to the means adopted either then or in 1866,—they were simple enough,—but to the resolution which prompted the attempt at a moment of great depression. The result will have, or ought to have, a greater effect in promoting the establishment of deep-sea cables than the successful submersion of a dozen cables across the Atlantic. It had been thought and said that men sharing the risk of a deep-sea cable, were embarked in a desperate or gambling venture; one accident, and their money was irretrievably lost. This view had been especially advocated by Mr. Francis Gisborne with great show of truth. He contended, and many approved of his opinions, that it was madness to venture across a deep sea, when a cable could be laid in shallow water, simply because in shallow water the cable could always be repaired, whereas in deep water they could not, and one fault involved the loss of the whole capital embarked. This argument, if not entirely swept away, is very much weakened. Deep-sea cables are no longer gambling ventures, but legitimate speculations.

Nothing can be simpler than the means by which the result was attained. A grapnel or small anchor with five prongs, hung to the end of a hemp and steel rope two and a half miles

long, was slowly dragged along the bottom of the sea across the line where the cable was supposed to be. The strain on the steel rope was watched; sometimes it rose, and sometimes it fell, as the ship went a little quicker or slower through the water, or as the prongs bit more or less deeply into the sand.

Presently the strain rose from 42 cwt. to 80 cwt., and this strain did not again decrease; but, had the ship been allowed to drift further, would have continued to increase. Surely this increase of strain was due to the cable as it lay on the bottom. The ship's head was allowed to come round so as to face the supposed cable; the steel rope was hauled in; the ship brought vertically over this rope. Still the strain increased, instead of decreasing, even when the length of rope still out of the ship could not reach to the bottom, and then those on board knew that the cable hung on the grapnel. If the cable were not there, the strain would decrease as the weight of steel rope hanging to the bow decreased, but an increase of strain surely proved that more and more weight was being lifted as the grapnel approached the ship, and what conceivable object could produce this effect except the cable, of which a greater and greater length was every minute being lifted from the bottom? This was the reasoning which, in 1865, proved to all on board that really on more than one occasion the cable had hung upon the grapnel. It is needless to say much of the failure to bring the cable to the surface—a failure caused by weak shackles and insufficient machinery,—but it is quite worth while to attend to the reasoning of many persons who, in 1865, wrote to prove that, even if the cable were found again, it could not possibly be brought to the surface by mere hauling. The argument used was, that such an enormous length of cable must be lifted, stretching east and west on either side of the grapnel, that it would break under its own weight long before coming to the surface,—as one gentleman put it, there was not a sufficient length of cable to reach to the surface. This argument had a certain amount of truth in it, but those who urged it did not generally take the trouble to make accurate calculations, and some made erroneous calculations. Stretch a piece of fine chain, 100 inches long, across a floor, lay it straight, and fasten down the ends; try to raise it in the middle, and you will find that, unless it has been pulled very taut indeed, it will rise an inch or two without difficulty. Even when a cable is supposed to be laid taut, it can be raised to a surprising distance; but the 1865 Atlantic Cable was not so laid; it contained 12 per cent of slack cable; that is to say, 112 miles of cable lay on about 100 miles of ground. Now, lay the 112 inches of chain on 100 inches of floor, and fasten the ends as

before. The middle of the chain can now easily be raised 21½ inches from the ground. The chain will then hang on each side of the point of suspension in catenary curves; the weight supported by the string used to lift the chain will simply be the weight of the chain that is off the ground; the strain on the cable at the point of suspension will be equal to 83½ inches of chain. This strain is less than the whole weight of the cable lifted, so long as the angle made by the chain at the grapnel is less than 120 degrees, as will always be the case when more than 6 per cent. of slack exists; it is a minimum, and equal to half the weight lifted when the cable hangs vertically down on each side of the grapnel, or when the slack is infinite. The more the slack the less the strain, for less cable will be lifted before the grapnel reaches a given height, and the angle at the grapnel will also be more favourable. With 12 per cent. slack, nearly 9¾ miles must be lifted from the ground to reach to a height of two miles. The weight of Atlantic Cable so lifted would be about 6¾ tons; the strain on the cable near the grapnel less than 5½ tons. As the cable would bear 7¾ tons, it was clearly possible to lift it by mere hauling. Moreover, the strain at the bottom would in this case be four tons, tending to pull in more slack from either side, and thus diminish the whole length lifted and consequent strain. By increasing the length of our experimental chain on the floor, and omitting the fastenings at the end, which in the actual cable only exist as friction in the sand, this effect may be clearly seen, and if, instead of tying the chain to the string used to lift it, the experimenter will fish for the chain from a table with four bits of wire, bent into a fish-hook shape, with their shanks bound together, making a mimic grapnel, the illusion will be complete, and the dredger will be surprised to find with what certainty he can hook the cable on a moderately smooth carpet. In 1866 the cable was once fairly hauled to the surface by mere brute force. Calculated from the weight (6½ tons) then on the grapnel, 9¼ miles of cable must have been hanging by the rope. The catenary formed was such as to require 15 per cent. of slack. The strain at the bottom, of about 3½ tons, had therefore pulled in an extra three per cent. along the sand on either side. The strain on the cable was about 4½ tons, but with this strain, or little more, it parted shortly after being brought to the surface, and before, owing to rough water, the necessary stoppers could be fixed to it from the ship. This simply affords another instance of the very well known fact that no engineer should ever depend on obtaining, at all points, the full theoretical or experimental strength of a cable or other structure. There must

be a margin. The cable was finally secured by the plan recommended almost unanimously by all who had experience in similar undertakings. Suppose the chain on the floor laid too taut to come up to the level of the table without breaking; if we with a pair of nippers cut the chain a few feet to our right, a little will slip over the grapnel, the two ends will hang down vertically, and we shall easily land our prize. Just so when the 'Great Eastern' had hold of the cable. She directed the 'Medway' to find it, and lift it three miles nearer to America, she then told the 'Medway' to haul away as fast as she could to break the cable, and the 'Great Eastern' hauled in more slowly, but fast enough to keep hold of the cable with her own grapnel. When the 'Medway' got the cable within 400 fathoms of the surface, it broke at her grapnel. The end fell down, and the loose bight was easily hauled on board by the 'Great Eastern.' The strain on this occasion was six tons. Owing probably to the hemp covering, the cable did not slip along the grapnel after being cut by the 'Medway.' The only chance of failure was that the cable might have rusted so much that, even when hanging vertically, it could not bear its own weight in two miles of water. On the contrary, little or no signs of rust were observed, and there is no reason to suppose that the 1865 cable had materially lost strength during its year of submersion. Considering the perfect success of this simple method of recovering the cable, it really is unnecessary to discuss the many ingenious plans suggested; probably the use of a holdfast grapnel in one ship, and a cutting grapnel in the other, would avoid a few mischances; but it is clear that even these appliances are unnecessary. A few accidents from broken chains, weak swivels, stoppers that slipped, bent grapnel-prongs, etc., did occur, and always do occur, even when cables are repaired in shallow water, and, indeed, the repairs of cables in the English or Irish Channel often last longer than the three weeks occupied in recovering the Atlantic Cable. A rocky bottom causes more difficulty and delay than two thousand fathoms of water.

The cable, when recovered, proved perfect; and, on the 2d of September, Sir Samuel Canning telegraphed to Sir Richard Glass, the able manager of the contracting company, that he had much pleasure in speaking to him through the 1865 cable. It was a noble triumph, well earned. The 1865 cable was completed on September 8, 1866. It lies about thirty miles north of the 1866 cable. Those who wish to learn more of the history of this enterprise will find accurate and clear information in *The Atlantic Telegraph*, by W. H. Russell, LL.D., illustrated by R. Dudley; and in the diary of Mr. Deane, the secretary of the Anglo-American Telegraph Company, published in the *Times*.

The success of the Atlantic Cable was not gained by the effort of a single genius, but resulted from the co-operation of many minds, and divers kinds of men. Some have followed the undertaking from first to last; for instance, Mr. Cyrus Field's unflinching faith has carried him on from first to last as an advocate whose zeal never flagged. Sir Richard Glass was a member of the firm of Glass and Elliot, which made half of the first cable, and he is the manager of the Company which has successfully completed the task. His work is known to all who practically were connected with the undertaking. He is the recognised chief of all, and willingly recognised. Sir Samuel Canning and Mr. Clifford accompanied the first expedition. Sir William Thomson was on board the 'Agamemnon' in 1858, and has freely spent time and money in forwarding a work in which he saw a means of worthily employing the powers of a mathematician, the experimental skill of a naturalist, and the inventive faculties of a man of genius. His name has already been frequently mentioned as first to make this and that invention or improvement; and not only has he reaped with his own hand a meet harvest of scientific discovery, but he has the satisfaction of having prompted others whose work has been a supplement to his own; and indeed he may be said to have founded a new school of practical electricians in England. Mr. Varley came later into the field, but he too worked hard, and his assistance during the long period of depression from 1858 to 1865, and at Valentia during the last expedition, together with his additions to the testing and speaking instruments, give him strong claims. Mr. Willoughby Smith, of whose beautiful system of testing it is difficult to speak too highly, has only lately been placed in high command, but indirectly, as electrician to the Gutta-Percha Works, from first to last he has helped, and helped effectually, in improving the materials employed. Mr. Chatterton, the manager of those works, should not be passed by in silence. To these must be added the well-known names of Captain Sir James Anderson and Commander Moriarty, C.B., as well as those of the early pioneers, Sir Charles Bright, Mr. Whitehouse, and Mr. de Sauty, and last, not least, the Directors and Officers of the Atlantic Company, the Anglo-American Company, and the Telegraphic Construction and Maintenance Company. The difficulties these gentlemen have had to contend with do not admit of being scientifically stated. They can indeed only be known within a very narrow circle, but those who have been similarly placed, and have had to administer the affairs of a company heavily involved in a dangerous undertaking, requiring continually large supplies of fresh capital, will be able to guess at

the work and anxiety they must have undergone. A pair of Baronetcies among them all is really a moderate reward.

But now that the rewards are distributed, and the cables are laid, how are they being used? Alas! very little as yet. Perhaps no one even believes that a long submarine cable ever will be laid, and so preparations are never made to meet it. The Persian Gulf Cable was laid nine months before the land lines were completed which allowed it to transmit messages. Until very lately they were so wretchedly bad, or badly managed, that messages often spent a week in the overland journey, and arrived so much out of condition as to be unrecognisable by their friends.

The Atlantic Cables end at Hearts-Content, Newfoundland, and the journey of the messages often ends there too. It is said that up to the beginning of November, since the line was opened, the lines from Newfoundland to America have been interrupted for thirty days, or nearly one third of the whole time. Through large tracts of desolate country a single wire was expected to do all the work, and no due arrangement for its management seems to have been made. The short submarine line from the island to the mainland, laid in 1856, and eighty-five miles long, was also out of order when the 1866 cables were completed, and so we have hitherto reaped comparatively little benefit from those cables, looked on as a commercial speculation. The high price of £20 for a twenty-word message, only recently lowered to £10, has been justified by the fact, that if many messages had been obtained from the public, they really could not have been sent. So in practice one or two hours' work per diem has been sufficient to send on one cable all the American and European Continents had to say in a hurry. This cannot last, but it is almost amusing as a commentary on the lively disputes which occurred on the power of the cables to transmit a large amount of work. In time the outlet from Newfoundland will be completed, and the cables will then surely be flooded to such an extent as to test their utmost capabilities.

Engineers and electricians, half-alarmed at their own audacity, gave certificates that seven or eight words per minute might be sent along the new cables. New and complex instruments were devised to insure even this result, and now eighteen or twenty words per minute have been obtained; with the omission of many of these inventions, twelve words per minute is the fair average speed. Nevertheless, the engineers and electricians were not to blame. On the contrary, they deserve praise for their moderation. To explain how their estimate was formed, a sketch of the theory of the transmission of submarine signals is required, and here again Sir William Thomson

must be named as the first to state that theory, and draw the main conclusions from it. In a letter to the *Athenæum*, dated November 1, 1857, Sir William Thomson pointed out, in opposition to Mr. Whitehouse, then electrician to the Atlantic Telegraph Company, that the number of words which in a given time could be sent through a long submarine cable varied inversely as the square of the length of that cable; that when the length of a cable was doubled, only one quarter the number of messages per diem could be sent through it. In a paper published in the Proceedings of the Royal Society, Sir William Thomson gave the complete theory, showing that on all lines a limit existed to the speed of transmission, and giving an estimate of the probable speed through the 1858 Atlantic Cable as three words per minute.

The speed of electricity used to be given as 288,000 miles per second, but in reality Professor Wheatstone's beautiful experiments only proved that this speed might in given circumstances be attained. Electricity seems to have no proper speed, in the usual sense of the word. The speed depends in each case on the condition of the conductor,[1] and may on certain conceivable conditions be treated as infinite, though we have no proof that the laws now known hold good up to or nearly up to this limit. When the Valentia end of the Atlantic Cable is joined to the signalling battery, a current rushes into the cable without any perceptible loss of time, but no effect whatever can be perceived in America for at least one-tenth of a second; after say fifteen-hundredths of a second, the received current begins rapidly to increase, according to a definite law, and if the battery contact at Valentia is continued, the current entering the cable there, and that flowing out of the cable at Valentia, will be sensibly equal after say two and a quarter seconds. After this the currents would remain equal so long as the battery remained in action. When the battery contact is broken at Valentia, and the cable put to earth, the current flows on at Newfoundland for say one-tenth of a second, as if nothing had happened; it then begins rapidly to decrease, and sensibly ends say two and a quarter seconds after the contact was broken.

[1] This fact, and the increased retardation observed in underground wires, and therefore in submarine cables, is guessed, or rather foreseen, in a very curious proposal for an electric telegraph, by Francis Ronalds, published in 1823, containing an account of experiments made in 1816, long before the days of Gauss or Cooke and Wheatstone, before even the discoveries of Oersted and Ampère, which have rendered our present system of telegraphy possible. The writer is indebted to Mr. Latimer Clark for the knowledge of this fact. Mr. Ronalds' proposal, based on actual experiment through eight miles of wire, deserves to be better known than it is. His book is called *Descriptions of an Electrical Telegraph*, and was published for R. Hunter, 72 St. Paul's Churchyard, in 1823.

Thus the current arrives in gradually increasing waves, and dies out in a precisely similar manner. (The numbers given are not the result of direct experiment, but are probably not far from the truth.) On an average three waves, or arrivals of waves, are required to indicate a letter of the alphabet, and five letters are required for each word, so that if on each occasion the wave had to rise to its maximum and fall to its minimum, each letter would require twelve seconds for its completion, and one word per minute only could be sent. With the ordinary Morse instruments used on land and short submarine lines, probably this result would be nearly the limit of the working speed. On the Malta-Alexandria Cable, which has a larger core, and one, therefore, better adapted for speed than the Atlantic Cable, only 3·18 words per minute were obtained through 1330 knots. Calculated from this, and allowing for the difference of the cores, the speed on the Atlantic Cables would be little more than $1\frac{1}{3}$ words per minute; and be it remarked that until the present year no other instruments than these ordinary Morse instruments were in practical use on submarine lines. Our engineers were therefore bold when they promised seven or eight times this speed by means of new instruments. Moreover, the New Atlantic, even allowing for the difference in length and in copper, can only be about two and a half times as good a speaking instrument as the 1858 Atlantic, on which only two and a half words per minute had been obtained.

In order to produce a succession of distinct and legible signals, it is not necessary that the wave should reach its maximum and fall to its minimum at each signal. If the sending battery contacts are changed or reversed before the full height of the wave is reached, the wave is not obliterated, it is simply diminished; if battery contacts, alternately with one and the other pole of the battery, succeed one another with considerable rapidity, say three reversals every second, or ninety dot-signals per minute, the waves will be reduced to say 10 per cent. of their maximum; but if we can render these little waves visible, they may be interpreted as legible signals. The old Morse system, which simply indicated a blunt Yes or No, could not show these little waves, or follow them in any way. Sir William Thomson's reflecting galvanometer does render these little waves legible, even when they are no larger than one per cent. of the maximum current. The received current deflects a tiny magnet to and fro. A little mirror swinging with the magnet reflects a spot of light on to a distant scale, where by its oscillations the spot of light indicates movements of the magnet too small to be directly seen. The little swinging

magnet follows every change in the received current, and every wave, great or small, produces a corresponding oscillation of the spot of light on the scale. These little oscillations, produced in due order, are easily read by a practised clerk,—no one knew how easily. The sending arrangements were designed to produce perfect regularity in these little waves, making them as sharply defined as possible; but just as by a practised eye handwriting can be read in which there is no single clearly formed letter, so it has been found that a clever clerk will instinctively, as it were, disentangle most irregular oscillations of this little spot of light into the letters and words they should represent, and from this cause the greater part of the sending gear has been found unnecessary, and yet the bold estimate of eight words per minute has been exceeded. The addition of a single simple little instrument allows four times the number of words to be sent through the Atlantic that could be sent through the Malta-Alexandria Cable, of little more than two-thirds the length. Here, then, is at least as great an advance as in the other branches of submarine telegraphy. In future long cables the speed may be calculated on this new basis, which has long been advocated by a few, but which had not received practical confirmation till now. The speed at which messages can be sent through a given length of cable is simply proportional to the quantity of copper and gutta-percha used, provided the relative proportions of these materials remain unchanged, as is now practically true in most cases. The new experiment would therefore allow the engineer to adopt a core of one-eighth the weight which he could have adopted upon the old system of telegraphy to obtain the same speed; or if he be not bold enough to adopt so small a core as this would sometimes lead to, he may at least choose the smallest core which on mechanical grounds he thinks safe to adopt. Here we may catch a glimpse of possible cheap cables hereafter.

So long as the cable was coiled on board the 'Great Eastern,' it was not possible to transmit more than five or six words per minute through it, even with the best appliances. The difference between a coiled cable and a straight one, as a means of signalling, has long been known, and that difference appeared from Mr. Jenkin's experiments on the Red Sea Cable (Transactions of the Royal Society, 1862) to be possibly great enough to halve the speed, or even reduce it to a still smaller fraction of that obtained on the straight cable; but crucial experiments on this point were wanting. The extra retardation is produced partly by the induction of the current on various parts of itself in neighbouring coils, and partly by the magnetization and demagnetization of the iron sheathing, which forms a sort of huge

electro-magnet. The effect produced by the coiling is analogous to giving the electric fluid an inertia, and consequent momentum, an analogy long since pointed out by Sir William Thomson, in a paper by him and Mr. Jenkin on the discharge from a coiled cable, published in *Phil. Mag.*, 1861. A new illustration of this analogy was discovered on board the 'Great Eastern' by Sir William Thomson, in the fact of an oscillating current flowing in and out of the insulated cable when first charged. This phenomenon was described by Mr. Varley in a paper read at the meeting of the British Association this year at Nottingham, and published in the *Athenæum* of the 15th September.

The signalling arrangements on board ship and on shore present this peculiarity, that there is no voltaic circuit. The current is received at Valentia in a Leyden jar or condenser, which acts as a sort of elastic reservoir. When receiving, it is alternately charged by the cable, and discharged back into the cable; while the galvanometer placed between the condenser and the cable indicates the alternate forward and backward tide in the current. Similarly when Valentia wishes to send signals, it charges the condenser positively or negatively by induction from the battery, and thus causes corresponding movements in the charge of the cable. This arrangement, already alluded to in the testing arrangements, is due, we believe, to Mr. Varley, and prevents to a great extent the action of earth-currents, which would otherwise be found troublesome with so sensitive a receiving instrument as the mirror galvanometer. Much has been said concerning these earth-currents, and some people thought they would render signalling across the Atlantic impossible.

Different parts of the earth and sea are found to be at different electric potentials. One part is electro-positive or electro-negative to another. There is, that is to say, the same difference between two parts of the earth that exists between the two poles of a battery. If, then, these two points are joined by a wire, a current will flow through that wire as if from a battery, and this current is termed an earth-current, to distinguish it from a current produced by an ordinary voltaic battery. This difference of potential between two given spots, such as Newfoundland and Valentia, is not constant, but continually varies. So does the current it produces. The current, and the variations in the current, interfere with the signalling current, disturbing the distinctness of the signals. When no voltaic circuit exists, no direct current will flow from one end of the cable to the other, except that caused by the discharges into and out of the condenser; but a change in the potential of either station will still have some disturbing effect, by changing

the charge in the condenser. When very rapid changes take place in the electric condition of the centre, a magnetic storm is said to be taking place, and this, on all lines, will occasionally put a stop to signalling. Very little is yet known as to the cause of earth-currents or their laws. The electro-motive force producing them does not seem to increase with the distance between the two ends of the line after the first few miles. No greater force than that due to ten ordinary Daniell's cells is reported by Sir W. Thomson and Mr. Varley to have been observed at any time between the two ends of the cable. Much the same may be said of the Malta-Alexandria Cable; but Mr. Varley has spoken of a force equal to 400 cells on short land lines in England. Thus submarine lines appear to have in this respect an advantage over air lines. The latter are further subject to induction from changes in the atmosphere, producing effects similar to earth-currents. The conducting mass of the sea should screen submarine circuits from all these effects; but Mr. Varley has informed the writer that currents were observed from the Atlantic which seemed to be of this nature. One most singular phenomenon was also communicated to the writer by Sir W. Thomson and Mr. Varley. Owing to changes in the potential of the sea, the capacity of the cable for a statical charge varied. The immense Leyden jar formed by the cable at times therefore poured out a current at one end, while the other was insulated, giving apparently more than infinitely good insulation. Not only did the battery used to test insulation then fail to force any current through the gutta-percha of the insulated cable, but a current was actually forced back on the battery, as if coming through the gutta-percha into the cable. From this cause, even if the Atlantic Cables were joined in a metallic circuit, continual currents would fluctuate to and fro between them, owing to changes in the difference of potential of the sea in their respective tracks, thirty miles apart. The two cables afford an unrivalled opportunity of studying earth-currents, about which really little is known; and it is to be hoped the opportunity will not be neglected. There is not the slightest reason to fear that they will prove any obstacle to the transmission of messages through any submarine cable, of whatever length it may be. One method of avoiding all disturbance from earth-currents is to use so powerful a battery as to overpower their effects; but this plan is not to be recommended, since the action of a powerful battery has been known to change small faults into great ones, and though not even a small fault is believed to exist in either Atlantic Cable, it is well to avoid so powerful a decomposing agent as is furnished by a large voltaic battery. 400 cells were used in 1858. For the signals sent in

1866, 12 cells are sufficient, but 20 or 30 is the number in daily use. Mr. Latimer Clark sent signals through the two cables joined in one, being a circuit of 3754 geographical miles, with one small cell formed in a thimble. In connexion with the subject of signalling, it is interesting to remark that perhaps Sir William Thomson's connexion with the Atlantic Telegraph Cables was due to a controversy between him and Mr. Whitehouse on the subject of signalling; the letters are published in the *Athenæum* from August to November 1856, and are extremely curious. Mr. Whitehouse misinterpreted some careful experiments, and remarks in one place that to lay such a cable as he thought Sir William Thomson's theory demanded, would require Mr. Scott Russell's 'Leviathan.' It is needless to add that subsequent experiment has confirmed every part of Sir W. Thomson's theory, although the constants he used have been somewhat modified by experience.

Attention has so far been chiefly directed to the Atlantic Cables, because in connexion with these almost every late improvement has been adopted or invented. Lines in shallow water remain much what they were in general construction ten years since. Those of later design are heavier on the average than the earlier cables, for experience has shown that a saving of weight and strength results in great ultimate loss. The average life of a shallow water cable, weighing less than two tons per mile, is about five years, whereas no limit can as yet be assigned to the life of cables weighing eight or ten tons to the mile. The iron wires are now almost always galvanized, and frequently covered with hemp, and Bright and Clark's silicated bituminous compound, which seems very efficiently to protect the cables from rust, and to prevent broken wires, during submersion, from fouling any part of the machinery, a frequent occurrence some years since, producing what was called a brush, formed by the one broken wire remaining on board in a constantly increasing coil or tangle round the axis of the rope, while the rest of the cable went overboard. The Persian Gulf Cable made by Mr. Henley, and tested and laid by Messrs. Bright and Clark for the Indian Government, under the superintendence of Colonel Stewart, was thus covered. The excellence of this cable, 1176 miles long, laid near Kurrachee, in a sea with the temperature at the bottom of 24·2° C., and at the top of 26° C. is a proof that gutta-percha may, with due precaution, be used in tropical climates.

The gutta-percha resistance per mile of this cable varies from 575 to 268 millions of British Association units per mile, according to the temperature of the bottom of the various sections. It was laid from sailing vessels towed by a steamer. The

diameter of the main cable, covered with compound, is $1\frac{1}{8}$th inches, and its weight is about 3·7 tons per mile. The Lowestoft-Norderney Cable, 240 miles long, laid in September last, from England to what was Hanover, is the heaviest, on the whole, yet laid. It weighs $10\frac{1}{2}$ tons per mile, is 2 inches in diameter, contains four insulated conductors, is covered with Bright and Clark's Compound, and would bear a strain of twenty tons. It has twenty miles of shore end, each mile of which weighs twenty tons, and would bear a strain of forty tons. The insulation resistance of each mile, as it lies in the North Sea, is 1100 millions of British Association units, and the four wires are remarkably uniform. This cable was laid for Messrs. Reuter's Telegram Company, under the superintendence of Messrs. Forde and Fleeming Jenkin. The contract was let to the Telegraph Construction Company, and the cable made and laid by Mr. Henley. The England-Holland Cables are shorter examples of equally colossal proportions. There are now seven cables at work between England and the Continent, and three between England and Ireland. The Malta-Alexandria Cable, 1330 miles long, laid for Government in 1861, under Mr. Forde's superintendence, by Messrs. Glass, Elliott, and Co., also deserves mention. Although not designed for shallow water it has done good service; but the frequent interruptions which occur will serve as a warning not again to use a cable weighing less than two tons per mile in shallow seas. Those who wish for fuller information concerning the less important lines, may consult the references given in the course of this article. The most important fact to be stated about shallow sea lines, is that the Dover-Calais Cable, laid sixteen years ago, is still working, and likely to continue to work for many years to come.

It is extremely difficult to obtain accurate statistics as to the number of miles of cables laid, lost, and now at work. Many are in the hands of distant Governments, who give no information; and some are so frequently under repair, that it is difficult to know in what category to place them. In 1862, in Mr. Jenkin's report to the Jurors of the Great Exhibition, 5345 statute miles of cable, and 9456 miles of gutta-percha wire, were said to be in working order; 9406 miles of cable were classed as having been successful for some time, but not then working; 557 miles were classed as total failures. These numbers were avowedly mere approximations.

Mr. Francis Gisborne published statistics in 1865, in which he put the numbers for working and new-working cables at 5066 and 11,261 statute miles respectively. Dr. Russell gave 6842, and 9407, as the length of cables at work and abandoned. Since then 3754 miles have been added to the successful list

by the Atlantic expedition. The Gutta-percha Company claim now to have supplied insulated case for 12,100 miles of cable, which are still at work. Whatever the actual numbers are, it is incontestable that a large proportion of lines laid have failed from time to time. The Red Sea, and Batavia-Singapore Cables, upwards of 4000 statute miles long, failed from their want of weight and strength; they rusted rapidly, and could not be repaired when faults appeared, or when they chafed through; or rather the expense of the continual repairs was such that they were abandoned, perhaps somewhat prematurely. The failures of some deep-sea cables have in all probability been due to lightning. An unaccountable apathy has in many cases led to the neglect or actual removal of the lightning dischargers attached to submarine lines, and the writer has seen neglected dischargers with points fused and burnt away, proving that the line had been struck repeatedly. Other failures have been attributed to the tautness of the cable when laid, to friction at the bottom, to volcanic action, etc.; but not much is known about these causes, which are rather hypothetical than proved. Neglected faults have certainly, in some cases, been much enlarged, by the use of more and more powerful batteries, added by ignorant clerks.

These failures need alarm no one; they simply prove, what should be known without proof, that there is a real difference between ignorance and knowledge, between care and neglect; and that supervision after submersion is not less necessary than during manufacture. The main object of this article has been to show that the success obtained in late years, as compared with early failures, is due to no chance, but to a real advance in every branch of Submarine Telegraphy. If the reader does not understand or believe in this advance, the writer has failed in his object. He prefers to think that he has shown good reason for believing that the success is likely to be permanent. Much might be written on the proposals for still further improvements, real and imaginary. Mr. Hooper has succeeded in preparing india-rubber, so as to be apparently permanent, while it certainly surpasses gutta-percha in all the electrical properties which are required for the insulation of cables. The Indian Government has taken the initiative in employing this material, which is eminently suited for tropical climates. The other preparations of india-rubber have very generally been found subject to decay; and various newly proposed materials, such as parkesine and balata, can hardly be said to have been fairly brought before the public.

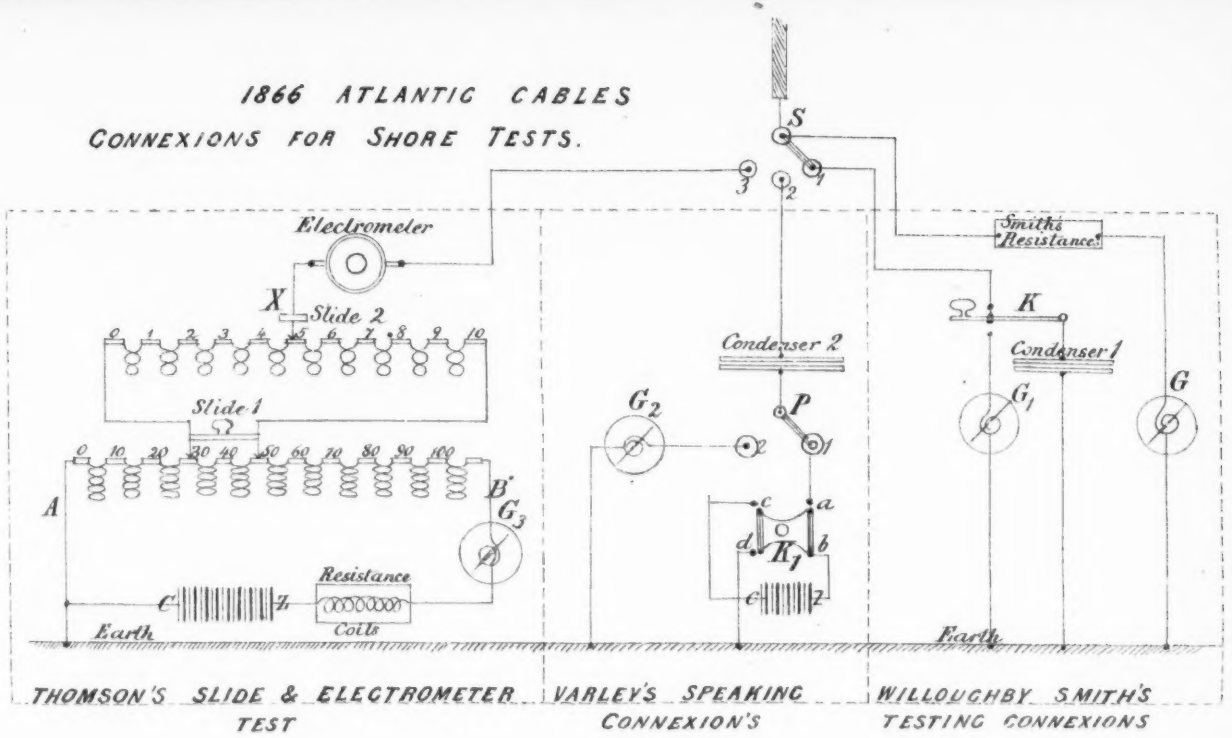
Messrs. Siemens have employed for some portion of their lines lately laid with success in the Mediterranean a very novel form of

cable, formed of hemp bound with strips of copper, which they believe will be much more permanent than the old-fashioned cables. The forms proposed, but not yet tested, are very numerous, and little is known of their merits. The cost of an experiment is so great that engineers hesitate to recommend even what they believe to be well worth a trial. It is certain that the old forms answer well, but it is equally certain that their expense will preclude their adoption, except on the main lines. A cheap light cable, durable in deep water, would lead to an immense extension of the telegraphic system. It is by no means certain that a simple gutta-percha-covered wire would not answer as well as the most elaborate cable. However this may be, the next advance must be towards cheapness;—efficiency is attained.

The importance of telegraphic communication is often claimed on very narrow grounds. The advantages in war and diplomacy are to some extent counterbalanced by very obvious disadvantages. Even the gain to individual merchants admits of doubt. By diminishing risks, telegraphy is sometimes thought to diminish profits. The mere convenience of sending a message quickly is outweighed in many minds by the annoyance of receiving, at all odd hours, scraps of news, often unintelligible from their conciseness. But on the broad ground that with the assistance of the telegraph the wants of one country can be supplied from the excess of another, in little more than half the time required for the purpose without the telegraph, we may claim for that invention a recognition that it is useful, in the sense that free trade, good roads, or fleet ships are useful. The measure of that good is a problem in political economy which it is not now our business to solve; it is certainly out of all proportion with the price paid for the information sent. Up to the present time, full advantage has not been taken of the power we possess. From a want of organization and some political difficulties, we cannot at this moment send a message to any distant part of the world with a certainty that it will be delivered without considerable delay and probable mutilation. Mr. Reuter, to whom we owe the organization of the despatch of public news, has begun to organize a system by which, in time, the great capitals of Europe may really be placed in instantaneous communication. A Parliamentary Committee has been considering proposals of a similar kind extended to the East; but, meanwhile, a message sent through the Atlantic Cable may be delayed five or six days in the wilds of Nova Scotia, and mutilated messages continue to arrive after a fortnight's journey from India. So long as this is the case, no calculation can be made of the employment which would be found for our great submarine cables if worthily worked. But

1866 ATLANTIC CABLES

CONNEXIONS FOR SHORE TESTS.



the fact that much remains to do, even after the Atlantic Cable has been laid, need not prevent a just pride in a really great victory, achieved, not by chance, but by a knowledge resulting from the patient efforts of many minds for many years.

ADDENDA.

Explanation of Diagram of Shore Tests—Atlantic Expedition.

S is a switch by which the cable can be connected at pleasure with the studs 1, 2, and 3.

The cable is always connected with Smith's resistance, through which a feeble current passes, deflecting galvanometer G, and showing by its magnitude the state of insulation of cable, or more strictly speaking, the potential at S.

When S is connected with stud 1, as drawn, Condenser 1 is charged by the cable. It can be discharged through galvanometer G_1. This discharge is a second test of the potential at S. It will cause an onward movement in the current applied by the ship's battery, and a consequent momentary change of deflection in the ship's galvanometer. This will be a continuity test for the ship, proving the copper unbroken. This test might have been used as an arrangement for speaking from shore to ship. Two condensers of different sizes would have given two signals, from which an alphabet could be formed.

When S is connected to 2 and the second switch P to 1, as drawn, the cable will charge one plate of Condenser 2, and conversely; if the potential of the other plate be changed by being connected through the reversing key K_1, alternately with each pole of the battery C Z, this will induce alternate positive and negative charges in the cable, which, being superadded or withdrawn from the original charge produced by the ship's battery, will cause alternately backward and forward currents which will show as signals on the ship's galvanometer. Similarly, if switch P connect the second plate of condenser to the galvanometer G_2, any changes of potential in the first plate of Condenser 2 caused by the ship's battery will induce corresponding changes in the charge of the second plate, and therefore currents to and fro through galvanometer G_2, which currents may be used as signals.

The cable at S may be connected through stud 3 with the electrometer, and its potential directly measured by comparison with the potential of some point of a set of slide resistance coils, through which a current is flowing from the battery. This current is maintained constant by reducing the resistance in resistance coils, so as to maintain a constant deflection in the galvanometer G_3. The potential at the successive studs of the slide 1 may be called in an arbitrary unit, 10, 20, 30, ... 100; and if the electrometer were directly connected with these studs, it would show with an accuracy of ten parts in a hundred what was the potential of the cable in the

same arbitrary unit. To obtain further subdivisions, a second set of resistance coils, each equal to one-fifth of each of those of the first slide, are joined so as to bridge over any two of the first set. The first set, consisting of eleven equal coils, the total resistance between A and B will always be ten units, and the ten studs of slide 2 will subdivide into ten equal parts,—the potential between the two studs of slide 1 which they bridge. Thus, as drawn, calling the total potential of A zero, and of B 100, the potential of X will be 35. Slides 1 and 2 during the test are moved till the potential is found, which is exactly equal to that of the cable. In reality, there were 101 equal coils in slide 1, and 100 in the second slide, each equal to $\frac{1}{5}\frac{1}{0}$th part of those in the first. Thus the potential between A and B could be subdivided into 10,000 equal parts.

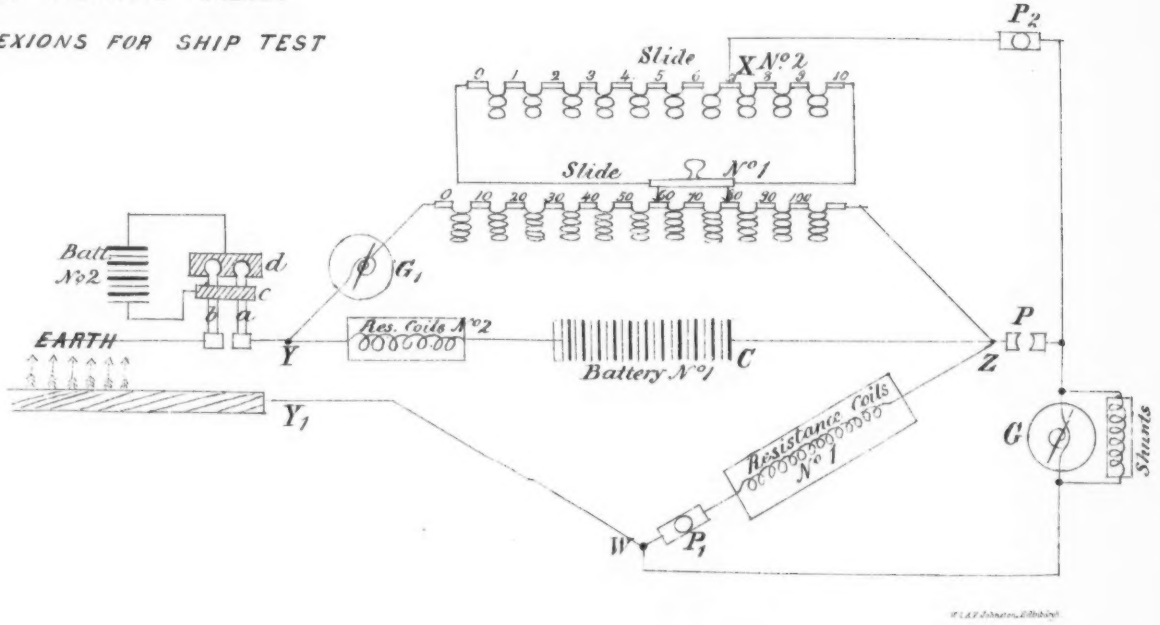
Explanation of Diagram of Tests on board Ship.

The diagram, when connexion is made by plugs at P_2 and P_1, but broken at P, represents a Wheatstone's balance, the four arms of which are, 1st, a set of resistance coils No. 1 between Z and W; 2d, part of the slide resistance coils between X and Z; 3d, the remainder of the slide resistance coils between X and Y; and 4th, the gutta-percha sheath of the cable between the conductor Y_1 and the earth Y. G is the galvanometer of the balance, arranged with shunts to diminish its sensitiveness when required. The resistance of the gutta-percha = resistance coils No. 1 multiplied by $\frac{XY}{XZ}$, or if we call S the slide reading, which, as shown, would be 67, we have S P resistance = resistance coils No. 1 $\times$ $(\frac{1}{6}\frac{0}{7}\frac{0}{}-1)$.

In the actual slides with 100 coils each, the resistance in coils No. 1 was multiplied by 10,000, divided by the slide reading, and a unit subtracted. The same formula gives the copper resistance if the remote end of the copper conductor is put to earth. Resistance coils No. 2, and galvanometer G_1, were used to maintain a constant current through the slides as described for the shore tests. Y was usually connected to earth by the bar C which joins *a* and *b*, but when the keys *a* or *b* were depressed, they sent signals to the shore from battery No. 2, but these signals only slightly raised or lowered the potential of the cable, and did not much disturb the electrification. When signals were being sent, the sensibility of the galvanometer G was diminished by shunts, which were removed during the pause after each word to take a perfect insulation test. If anything had gone wrong with the Wheatstone balance arrangement, the plugs P_2 and P_1 would have been withdrawn, and connexion made at P, which would have established the old direct simple insulation test from C to Z, P, G, W, and Y_1.

1866 ATLANTIC CABLES

CONNEXIONS FOR SHIP TEST



LIST OF CABLES.—(See MAP *facing* page 459.)

In Working Order.

1. Dover and Calais.
2. Denmark, across the Belt.
3. Dover and Ostend.
4. Portpatrick and Donaghadee.
5. Portpatrick and Whitehead.
6. Sweden and Denmark.
7. Corsica and Sardinia.
8. Newfoundland and Cape Breton.
9. Prince Edward's Island and New Brunswick.
10. Ceylon and India (Mainland).
11. Italy and Sicily.
12. England to Holland (Hague).
13. South Australia and King's Island.
14. Sweden and Gothland.
15. Folkestone and Boulogne.
16. Malta and Sicily.
17. Barcelona and Mahon.
18. Minorca and Majorca.
19. Iviza and Majorca.
20. St. Antonio and Iviza.
21. Malta and Alexandria.
22. Newhaven and Dieppe.
23. Pembroke and Wexford.
24. England (Lowestoft), Holland (Zandvoort).
25. Sardinia and Sicily.
26. Persian Gulf (Kurrachee, Mussendom, Bushire, and Fao).
27. Otranto and Avlona.
28. Algeria (Lacalle and Biserta), Sicily (Marsala).
29. Sweden and Prussia.
30. River Plate (Buenos Ayres and Monte Video).
31. Corsica and Leghorn.
32. England and Newfoundland (Valentia and Trinity Bay).
33. Do. do. (do. and do.)
34. England (Lowestoft), Hanover (Norderney).
35. Cook's Strait (New Zealand).

Failures.

1. Corsica and Sardinia.
2. Varna and Balaklava.
3. Red Sea and India (Aden, Suakin, and Kurrachee).
4. England (Cromer) and Denmark (Heligoland).
5. Tasmania and King's Island.
6. Toulon and Corsica.
7. Toulon and Algiers.
8. Singapore and Batavia.
9. First Atlantic.
10. Sardinia and Africa (Cagliari-Bona).
11. Sardinia-Malta and Malta-Corfu.
12. Greek Islands (Athens, Syra, Scio, Candia, Smyrna).

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